

# **Missouri State Epidemiological Profile April 2015**

MO Behavioral Health  
Epidemiology  
Workgroup  
(MO-BHEW)

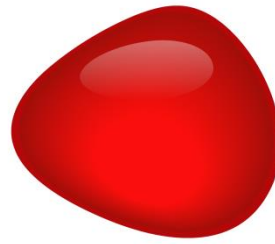


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# Missouri Substance Use – Key Findings



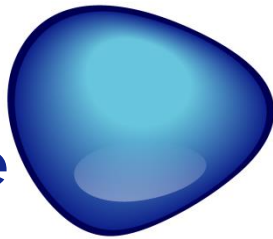
## Alcohol Use

51.7% of all Missourians 12 and older reported using alcohol in the past month while 24.4% reported binge drinking in the same time period. These numbers have remained relatively steady over the last decade; the binge rate is slightly higher than the national average.

Missouri has been higher than the national average for rate of deaths due to suicide for the last decade.

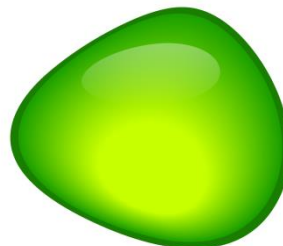
Homicide rates have been higher than the national average for most of the last decade as well. These rates are partially considered a consequence of alcohol use.

## Tobacco Use



28.2% of all Missourians 12 and older reported smoking cigarettes in the past month. This is a number that remains well above the national average (21.7%).

Missouri has been higher than the national average for rate of deaths due to tobacco use for the last decade.



## Marijuana Use

7.1% of all Missourians 12 and older reported using marijuana in the past month. This is a number that has increased slightly over the past few years and is becoming very close to the national average (7.4%).

Missouri has been higher than the national average for number of property crimes for the last decade. Rates for both Missouri and the US are trending downward.

# Missouri Mental Health – Key Findings

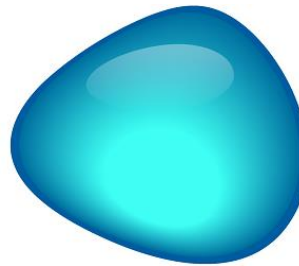
## Depression



Rates for adults having at least one major depression episode are typically higher in Missouri than nationally.

20.2% of Missouri youth said they were sad in the last month “often” or “always” while 11.8% said they felt hopeless about their future.

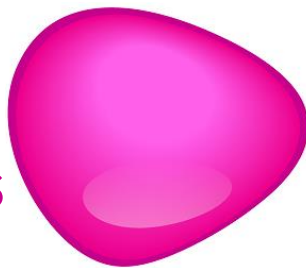
## Suicide



Missouri has been higher than the national average for rate of deaths due to suicide for the last decade, and the rate continues to climb.

8.6% of Missouri youth made a plan to commit suicide.

## LGBTQ & Vets



Students who identify as LGBTQ are twice as likely as students identifying as straight to report having suicidal thoughts or feeling sad or depressed at least sometimes.

Although stable over time, suicide rates in Missouri among veterans are more than double those among civilians.



# Introduction

Missouri is located in the Midwest, containing the mean population center of the nation.<sup>1</sup> The geography of the state is largely rural although over half of the population clusters around two metropolitan areas. Slightly over six million people make Missouri their home making it the 18<sup>th</sup> most populated state. 23.3% of the population is under 18 years old, 62.0% are between 19-64 and 14.7% are senior citizens. The population is primarily white (84.0%) with African Americans making up the second largest group (11.7%). Hispanics are a small group (3.7%) but growing. Less than 4% of the population is foreign born and approximately 6% of the households speak a language other than English when at home.

12.8% of the adult population do not have a high school diploma while only 25.8% have graduated from college. 15.0% of the households fall below the poverty level. The median household income is \$47,333. 8.2% of the adult population has served in the armed forces.<sup>2</sup>

The Missouri Department of Mental Health (DMH), Division of Behavioral Health (DBH) is the state authority responsible for developing and implementing a statewide response addressing substance abuse problems impacting Missouri families and communities. Through collaborative efforts, DBH works with other state and local agencies to ensure that the response is comprehensive and appropriate. In the fall 2010, DBH submitted a request for a subcontract through Synectics to the Center for Substance Abuse Prevention (CSAP), a part of the Substance Abuse and Mental Health Services Administration (SAMHSA), to increase the epidemiological

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<sup>1</sup> [http://www.census.gov/geo/reference/pdfs/cenpop2010/centerpop\\_geographic2010.pdf](http://www.census.gov/geo/reference/pdfs/cenpop2010/centerpop_geographic2010.pdf)

<sup>2</sup> <http://quickfacts.census.gov/qfd/states/29000.html>

capacity of the state. The grant was funded and the Missouri Behavioral Health Epidemiology Workgroup (MO-BHEW) was formed.

The MO-BHEW contains members from DBH and other state agencies such as Health and Senior Services, Social Services, Highway Patrol, State Courts Administrator and Elementary and Secondary Education. There are also several members from Missouri's higher education entities. The goals of the group are to use population-based behavioral health data to guide and improve policymaking, program development, and outcomes monitoring and to facilitate interagency and community collaboration for the collection, analysis, interpretation, and utilization of mental health and substance abuse related data. One of the products of the MO-BHEW is a State Epidemiological Profile. The first Profile was completed Spring 2011.

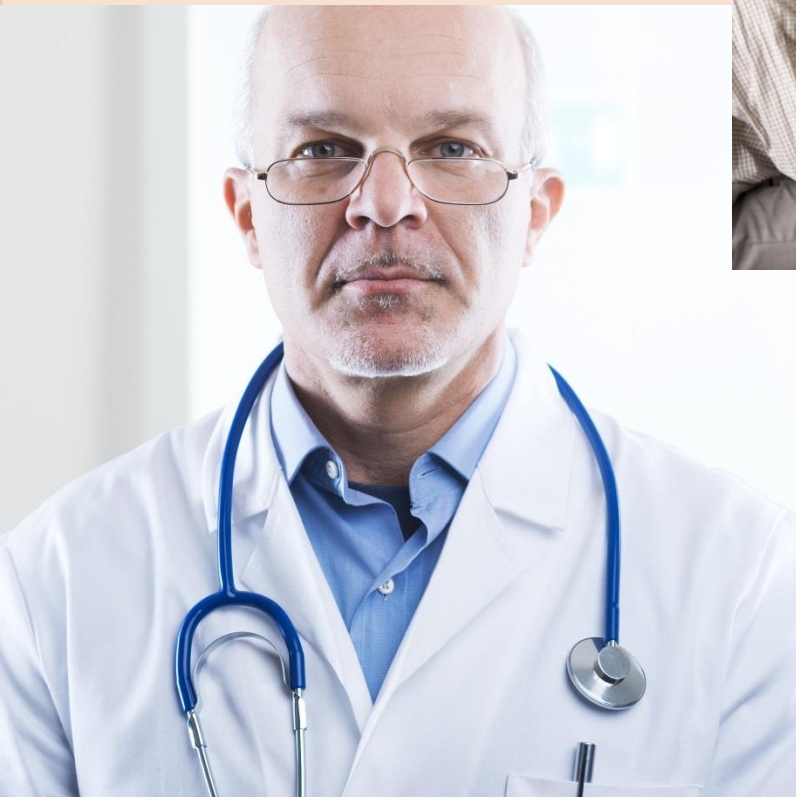
The State Epidemiological Profile provides an overview of the current data on substance abuse and mental health (where available) across the state, including subpopulation data where possible. In addition it discusses some of the Risk and Protective Factor data that is available for the state. The profile ends with a discussion of what data gaps still need to be addressed and provides some final conclusions as to the condition of the state.

For the last 16 years, the Department of Mental Health has produced an annual Status Report with data on alcohol and drug use across the state. This report includes data from national surveys as well as some local data where available. This historical data collection, in combination with the indicators listed in the guidance document, led to the choice of indicators covered in this report.

The Missouri Health Epidemiology Workgroup (MO-BHEW) identified two high risk subpopulations with data on mental health and substance abuse issues: lesbian, gay, bisexual, transgender or queer (LGBTQ) individuals and veterans. While data on these subpopulations is difficult to find, what is available is presented in this report.



# Key Substance Abuse Measures





# Alcohol Consumption

## Drinking Rates

- In 2012-13, 12.4% in the 12-17 age group reported drinking in the last month. This compares to 60.7% of 18-25 year olds and 55.0% in the 26+ age group.
- 51.7% of all Missourians 12 and older reported using alcohol in the past month. This is a number that has remained relatively steady over the last decade and is similar to the national average.
- Those in the 18-25 year old age group are most likely to have reported drinking in the past month. Those in the 12-17 age group showed a slight decrease in use in the past year while those in the 26+ group showed a slight increase.

Figure 1: Estimated Past-Month Alcohol Use (%): U.S. and Missouri Ages 12 and Older, 2002-2013

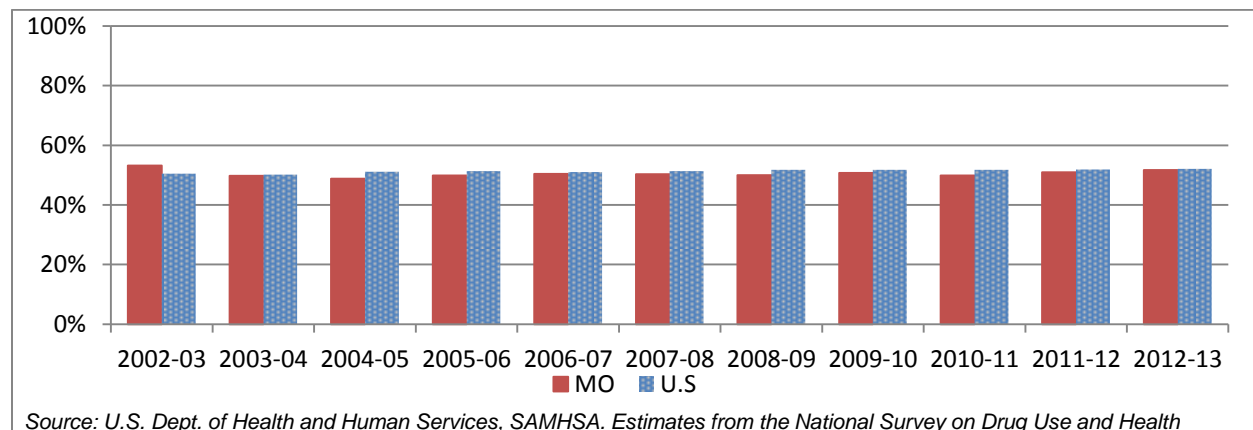
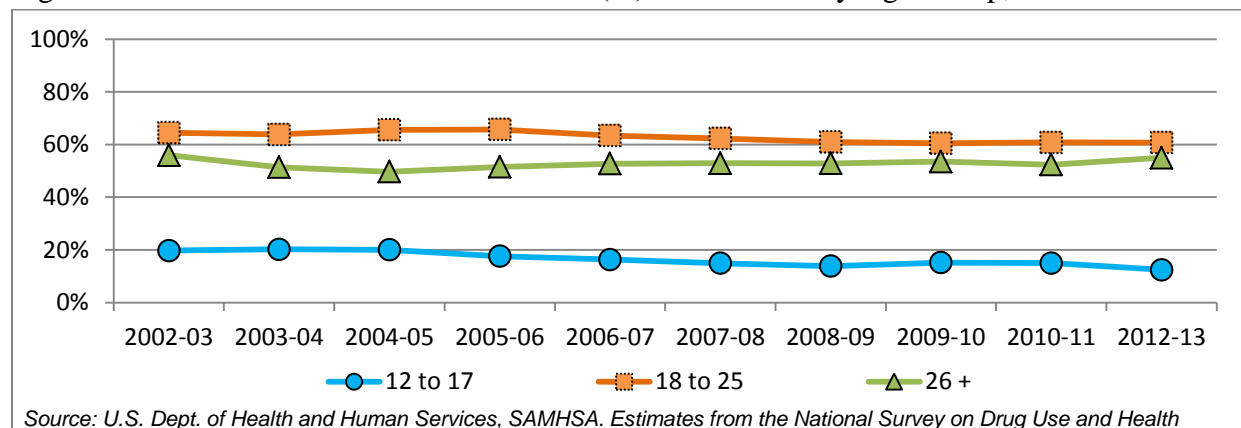


Figure 2: Estimated Past-Month Alcohol Use (%): In Missouri by Age Group, 2002-2013



## Age of First Use

- A fifth (19.5%) of all students currently in high school report having their first drink of alcohol before the age of 13. This percentage has been decreasing over the last decade and is similar to the U.S average.
- Males consistently report a higher percentage of drinking before age 13 than do females. In 2013 the male percentage was 22.6% compared to 16.2% for females.
- Missouri data for 2011 is not available.

Figure 3: % Students in 9-12 Grades Reporting First Use of Alcohol Before Age 13, U.S. and Missouri, 1999-2013

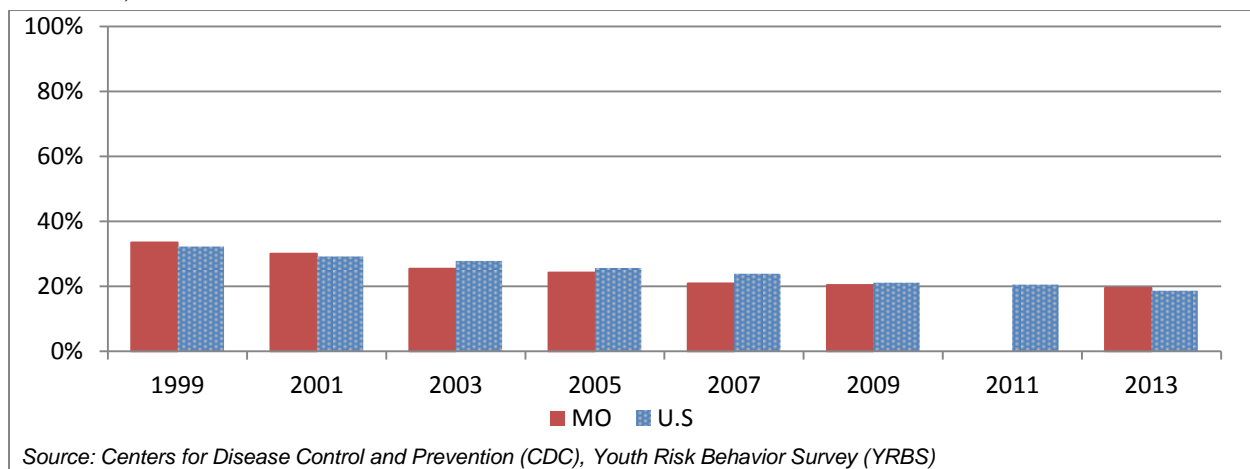
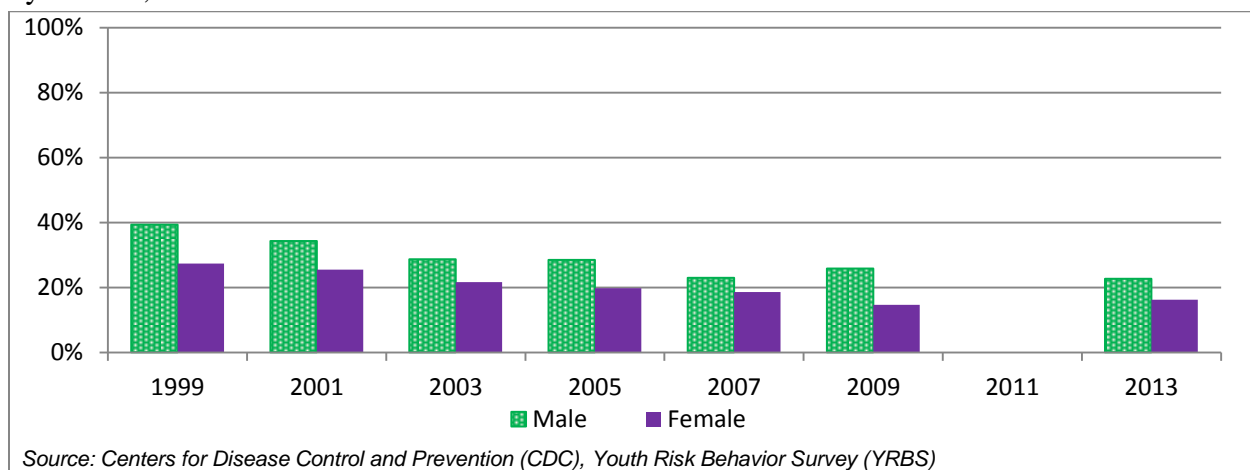


Figure 4: % Students in 9-12 Grades Reporting First Use of Alcohol Before Age 13: In Missouri by Gender, 1999-2013



## Per Capita Ethanol Consumption

- Per Capita data should be interpreted cautiously – it may not be sensitive in identifying areas where a high prevalence of heavy use are also seen with high rates of abstinence.
- The overall pattern of per capita ethanol consumption for Missouri is similar to that of the nation as a whole.
- Beer has the highest consumption rate for the state.

Figure 5: Per capita ethanol consumption for Missouri, ages 14 and older (in gallons)

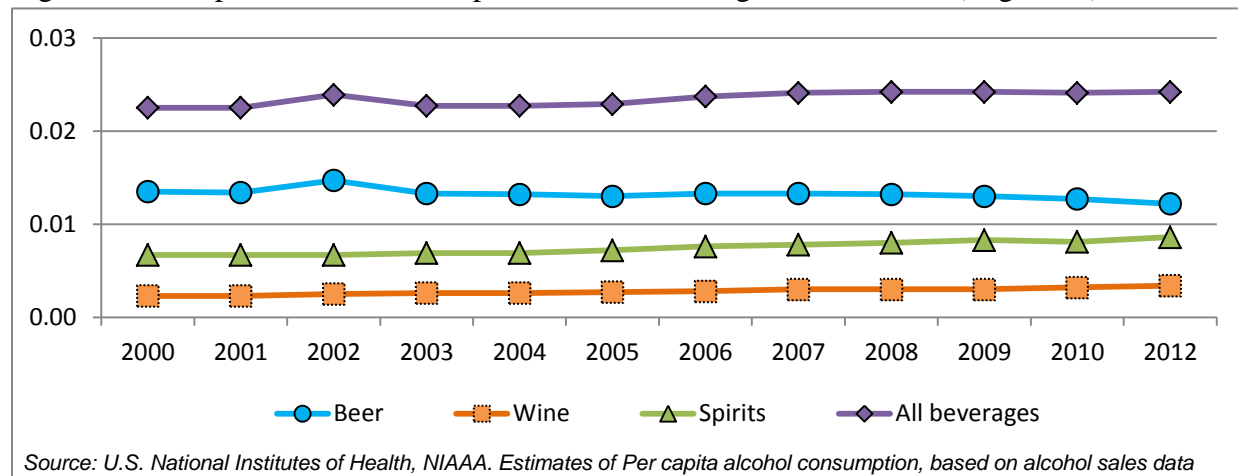
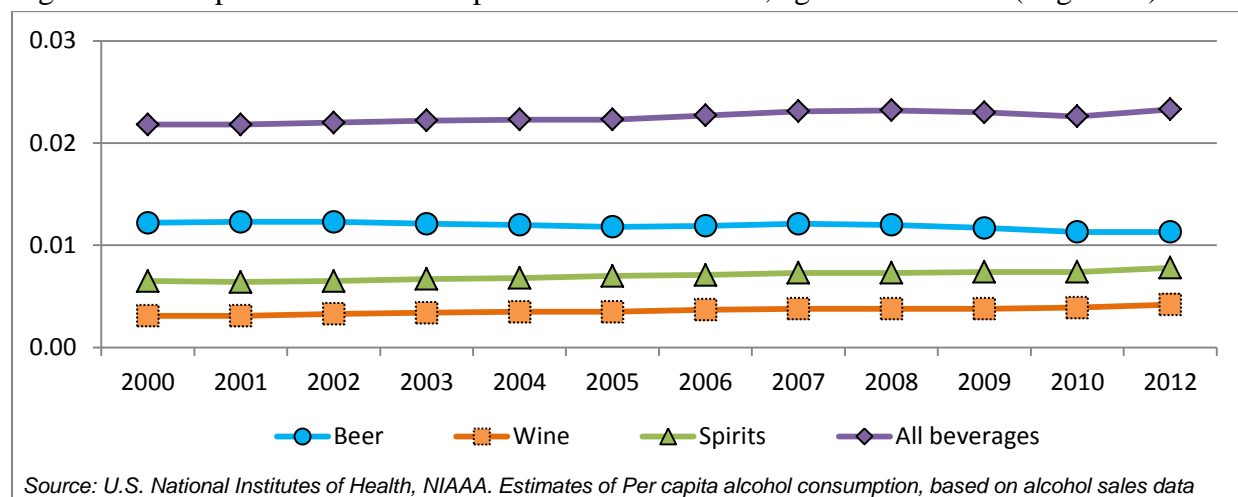


Figure 6: Per capita ethanol consumption for United States, ages 14 and older (in gallons)



## Binge Drinking

- In 2012-13, 7.5% of the 12-17 age group reported binge drinking in the last month. This compares to 40.7% of the 18-25 year olds and 23.6% in the 26+ age group.
- 24.4% of Missourians 12 and older reported binge drinking in the past month. This is slightly above as the national average (22.9%).
- As seen with overall drinking rates, those in the 18-25 year old age group are also most likely to have reported binge drinking in the past month. While this number had started to decrease in the last few years, it slightly increased over the last couple of years. There is a decrease in the 12-17 year olds over the last decade.

Figure 7: Estimated Past-Month Binge Drinking (%): U.S. and Missouri Ages 12 and Older, 2002-2013

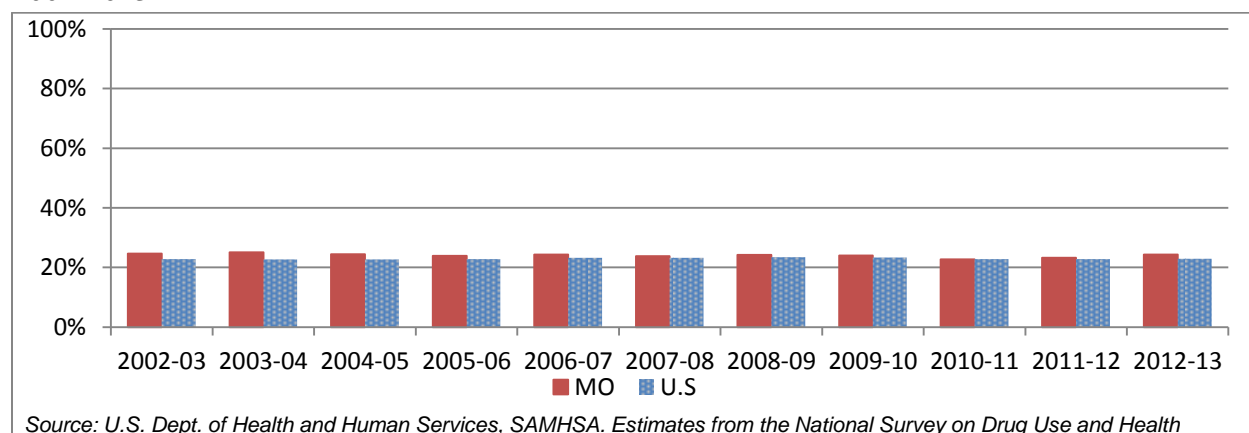
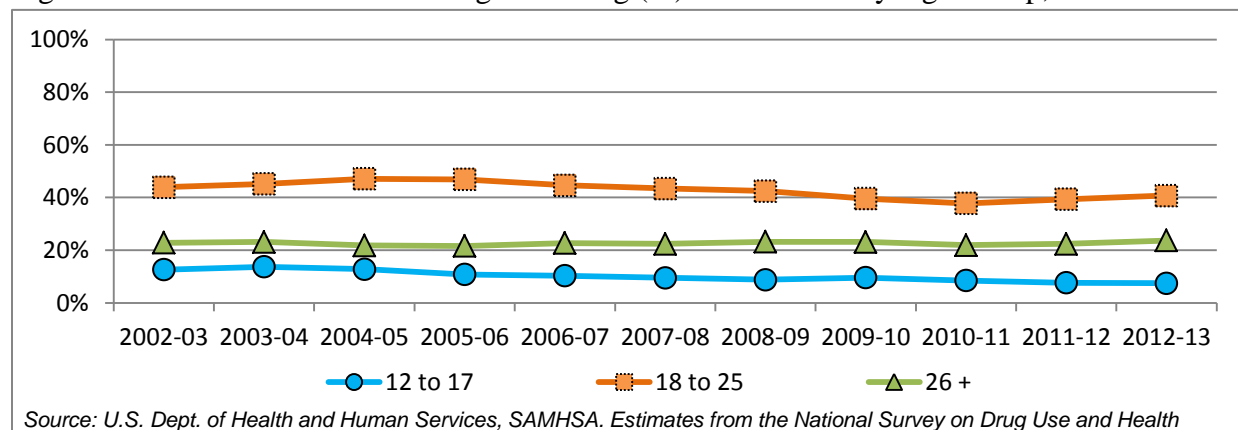


Figure 8: Estimated Past-Month Binge Drinking (%): In Missouri by Age Group, 2002-2013



- When comparing the percentage of people who reported any drinking to those who reported binge drinking, it becomes clear that binge drinking is a concern, especially in the younger age groups. Of those under 25 who reported drinking in the last 30 days, over half of them engaged in at least one session of binge drinking.

Table 1: Comparison of 30 Day and Binge Drinking in Missouri, 2012-13 Data

Age Group	% of Sample Reporting 30 day Use	% of Sample Reporting Binging in the last 30 days
12-17	12.4%	7.5%
18-25	60.7%	40.7%
26+	55.0%	23.6%

Source: U.S. Dept. of Health and Human Services, SAMHSA. Estimates from the National Survey on Drug Use and Health.

## Drinking and Pregnancy

- Prior reports have stated that PRAMS data is not available for Missouri. Instead they contained information from the Missouri Department of Health and Senior Services. However, in 2009 MDHSS stopped collecting this data while PRAMS data began to be reported in 2007 (data not available for 2008). This report will use PRAMS data.
- Older women were more likely than younger women to drink in the last 3 months of pregnancy. Black women were less likely than the other races to do so. Data should be interpreted cautiously; the wide ranges of the confidence intervals (CI) reflect the statistical uncertainty due to low sample sizes.

Figure 9: % of Missouri Births in which Mother Reported Having Any Alcoholic Drinks During the Last 3 Months of Pregnancy, 2007-2011

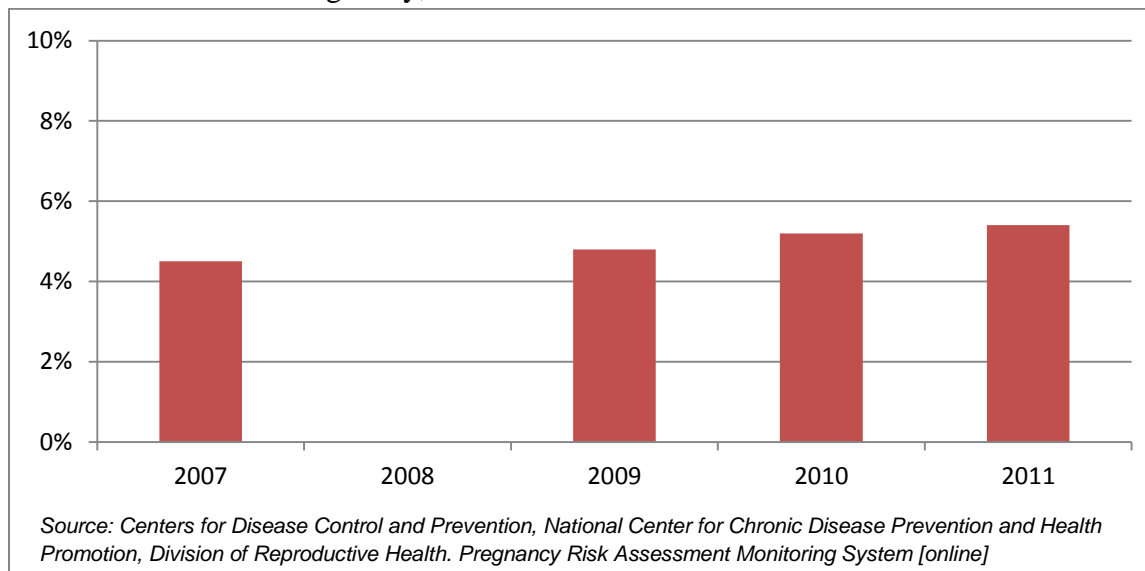


Table 2: % of Missouri Births in which Mother Reported Having Any Alcoholic Drinks During the Last 3 Months of Pregnancy by Maternal Age, 2011

Age	Drank during Pregnancy
Less than 20 yrs	2.6% (CI: 0.4-13.8)
20-24 yrs	5.1% (CI: 3.0-8.6)
25-34 yrs	5.7% (CI: 4.0-8.1)
35+ yrs	7.0% (CI: 3.7-13.2)

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. Pregnancy Risk Assessment Monitoring System [online]



Table 3: % of Missouri Births in which Mother Reported Having Any Alcoholic Drinks During the Last 3 Months of Pregnancy by Maternal Race, 2011

Age	Drank during Pregnancy
White, non-Hispanic	6.3% (CI: 4.7-8.3)
Black, non-Hispanic	1.6% (CI: 0.6-4.3)
Hispanic	4.8% (CI: 0.7-26.8)
Other, non-Hispanic	4.1% (CI: 1.2-13.5)

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. Pregnancy Risk Assessment Monitoring System [online]

Table 4: % of Missouri Births in which Mother Reported Having Any Alcoholic Drinks During the Last 3 Months of Pregnancy by Maternal Education Level, 2011

Years of Education	Drank during Pregnancy
Less than 12 years of education	4.7% (CI: 1.9-11.1)
12 years of education	4.4% (CI: 2.4-7.8)
More than 12 years of education	6.0% (CI: 4.4-8.2)

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. Pregnancy Risk Assessment Monitoring System [online]

## Drinking and Driving

- 3.8% of Missourians reported driving after drinking “perhaps too much” in 2012. This represents an 81% increase over 2010, consistent with a nationwide trend towards higher rates of drinking and driving in the past couple of years.
- Men consistently reported a higher percentage of driving after drinking than women; the increase in drinking and driving since last year was more pronounced for men.

Figure 10: % of Missourians 18+ Reporting Driving After Drinking “perhaps too much”, 1999-2012

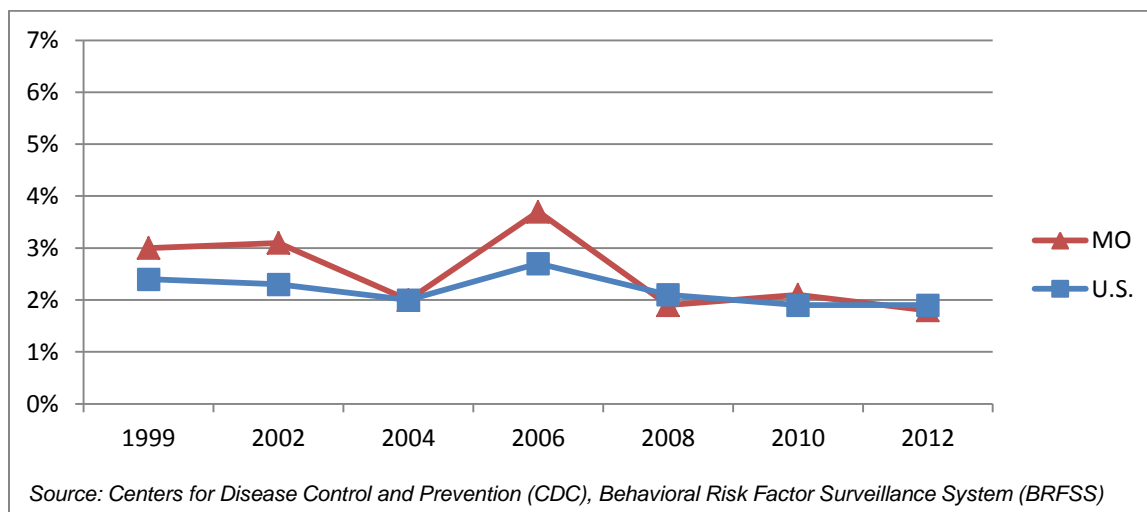
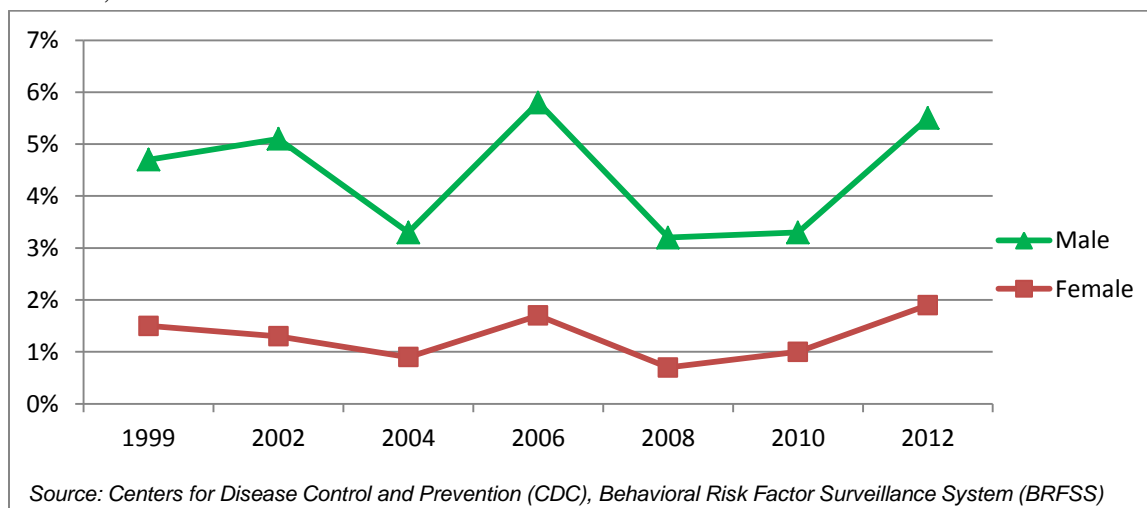


Figure 11: % of Missourians 18+ Reporting Driving After Drinking “perhaps too much”, By Gender, 1999-2012

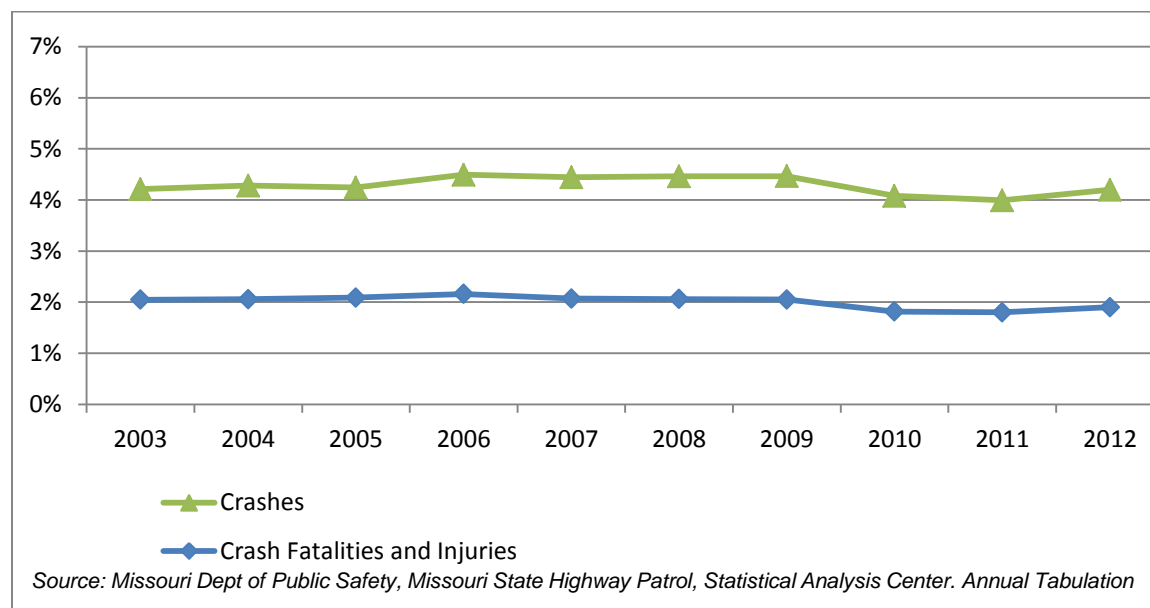


## Alcohol Consequences

### Traffic Crashes

- Total traffic crashes in Missouri are on the decline, falling from 194,995 in 1998 to 137,384 in 2012.
- The percentage of crashes that were caused by alcohol impaired drivers have remained somewhat stable over the last decade.
- The percentage of crashes that were caused by alcohol impaired drivers that resulted in fatalities or injuries have remained mostly stable over the last decade.

Figure 12: % of Missouri Highway Safety Burden Caused by Alcohol Impaired Drivers, 2000-2012



## Mortality Rates

- Missouri has been lower than the national average for rate of deaths due to cirrhosis (chronic liver disease) for the last decade.
- Missouri has been higher than the national average for rate of deaths due to suicide for the last decade. Homicide rates have been higher than the national average for most of the last decade as well.

Figure 13: Rate of All Cirrhosis Deaths per 100,000 Population: U.S. and Missouri, 1998-2013

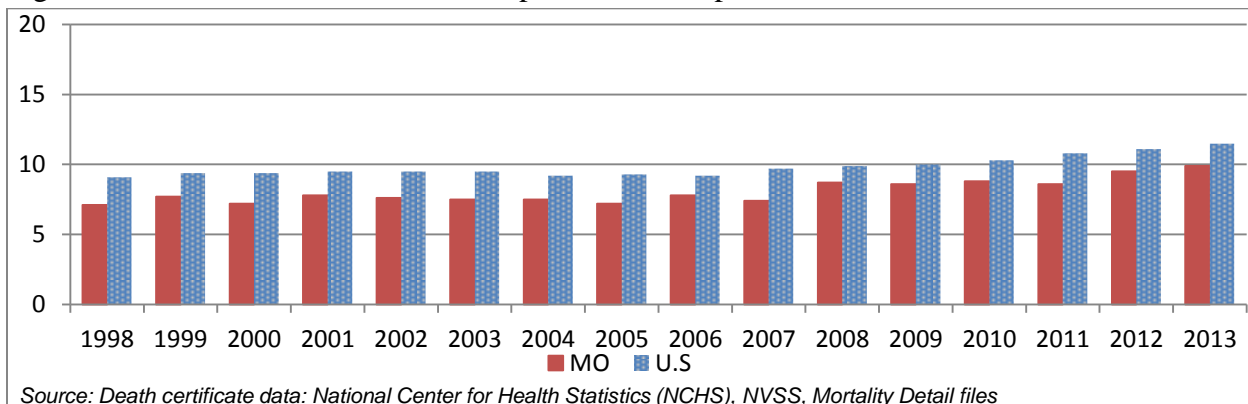


Figure 14: Rate of Suicides per 100,000 Population: U.S. and Missouri, 1998-2013

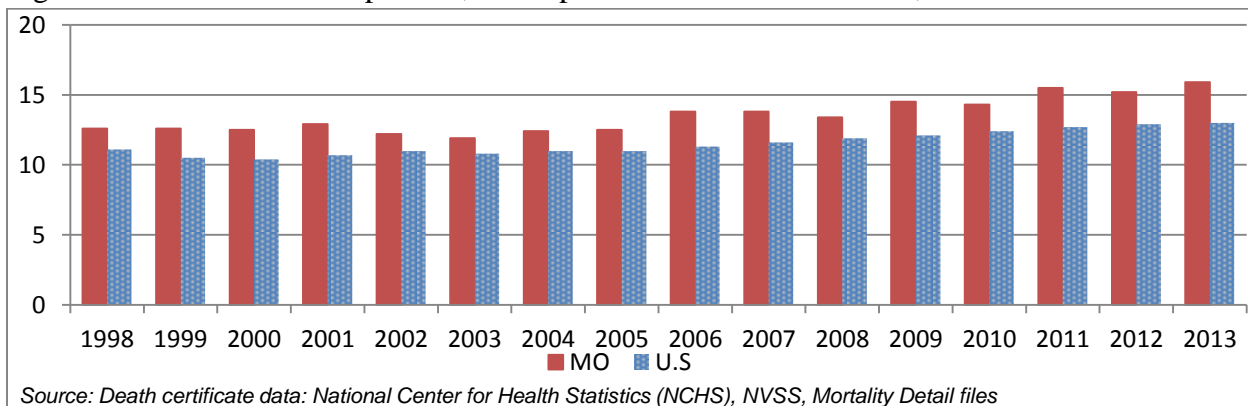
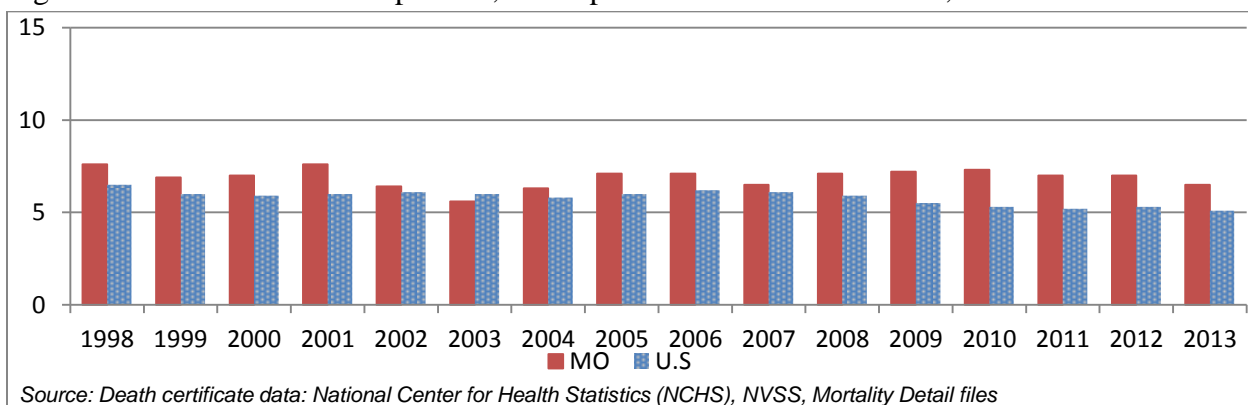


Figure 15: Rate of Homicides per 100,000 Population: U.S. and Missouri, 1998-2013



# Tobacco

## Tobacco Rates

- In 2012-13, 8.6% of those in the 12-17 age group reported smoking cigarettes in the past month. This compares to 38.2% of 18-25 year olds and 28.9% in the 26+ age group.
- 28.2% of all Missourians 12 and older reported smoking cigarettes in the past month. This is a number that remains well above the national average (21.7%).
- Those in the 18-25 year old age group are most likely to have reported smoking in the past month.
- All age groups have decreased their use over the last decade, although use increased over the last year for those 18 and over.

Figure 16: Estimated Past-Month Cigarette Use (%): U.S. and Missouri Ages 12 and Older, 2002-2013

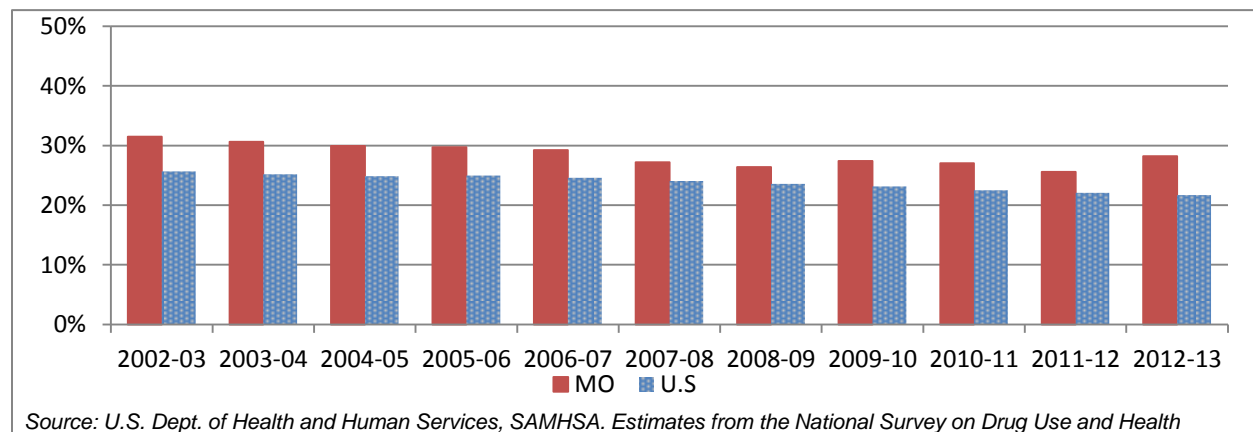
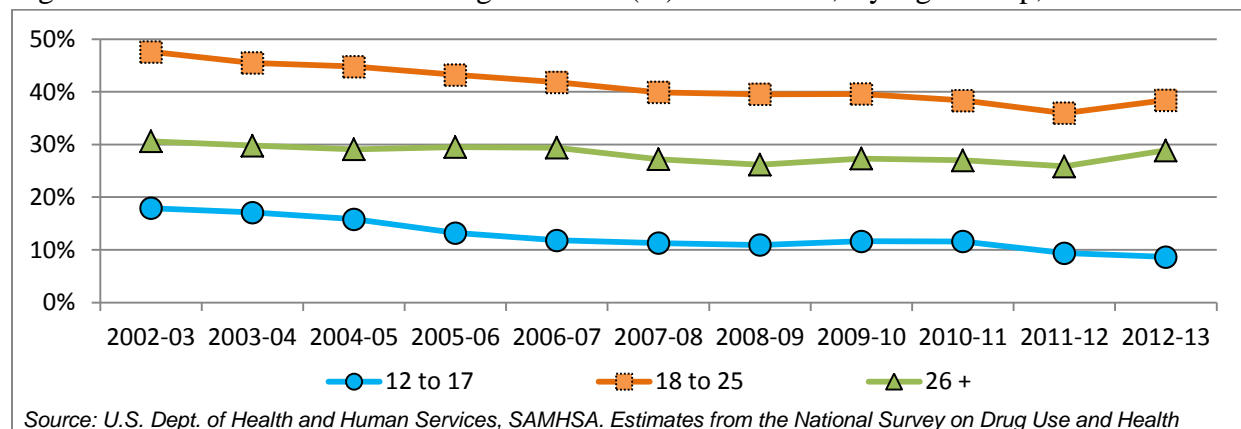
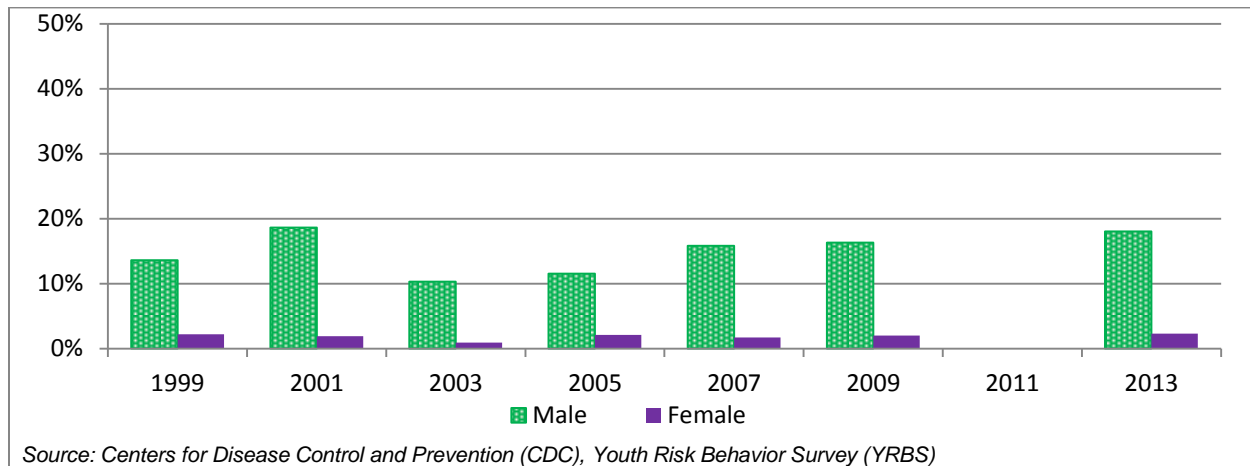


Figure 17: Estimated Past-Month Cigarette Use (%) in Missouri, By Age Group, 2002-2013



- Males are much more likely to report using smokeless tobacco in the last month than females are.

Figure 18: Estimated Past-Month Smokeless Tobacco Use (%) in Missouri, By Gender, 1999-2013





## Daily Use

- 18.2% of all Missourians 18 and older reported using smoking cigarettes daily in the past month. This is a number that is above the national average of 13.5%.
- Males were slightly more likely than females to report daily smoking.

Figure 19: Estimated Daily Cigarette Use (%): U.S. and Missouri Ages 18 and Older, 2002-2012

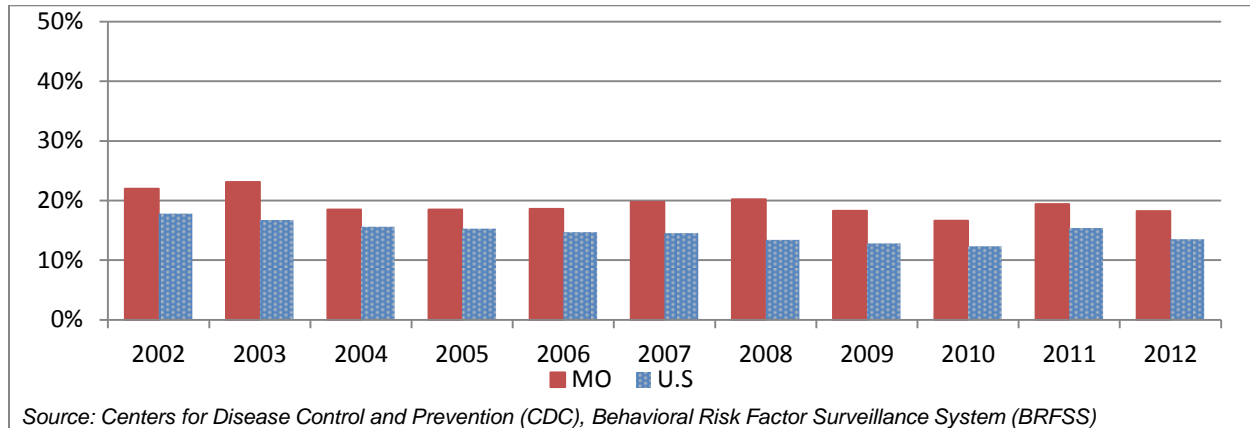
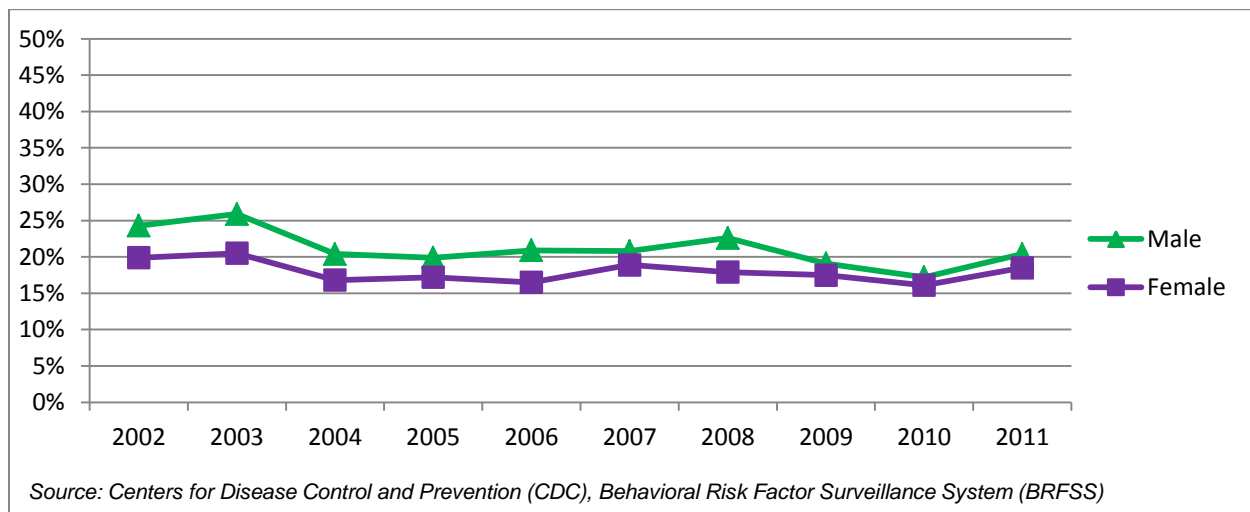
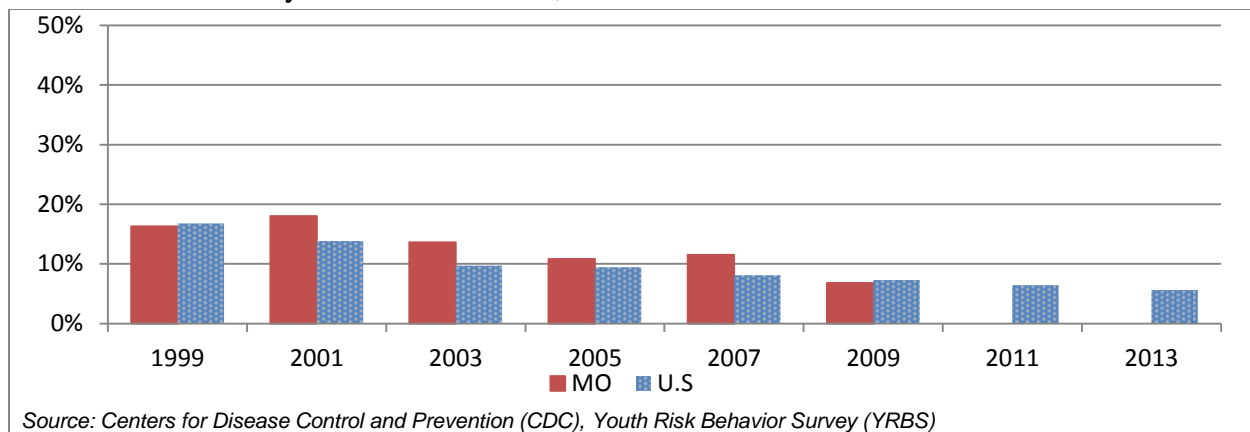


Figure 20: Estimated Daily Cigarette Use (%) in Missouri Ages 18 and Older, By Gender, 2002-2011



- When looking at high school students only, Missouri fell slightly below national average in 2009. However, one data point is not sufficient to determine a trend and new data is not currently available.
- Missouri data for 2011 or 2013 was not available as of the publication of this report.

Figure 21: % of Students in 9-12 Grade Reporting Smoking Cigarettes on 20 or More Days within the Past 30 Days: U.S and Missouri, 1999-2013



## Age of First Use

- 8.6% of all students currently in high school report using tobacco before the age of 13. This percentage has been decreasing over the last decade and has been slightly below the U.S average for the last several years in which data was available.
- Males typically report a higher percentage of tobacco use before age 13 than do females. In 2013, the male percentage was 8.9% compared to 7.8% for females.

Figure 22: % Students in 9-12 Grades Reporting First Use of Tobacco Before Age 13, U.S. and Missouri, 1999-2013

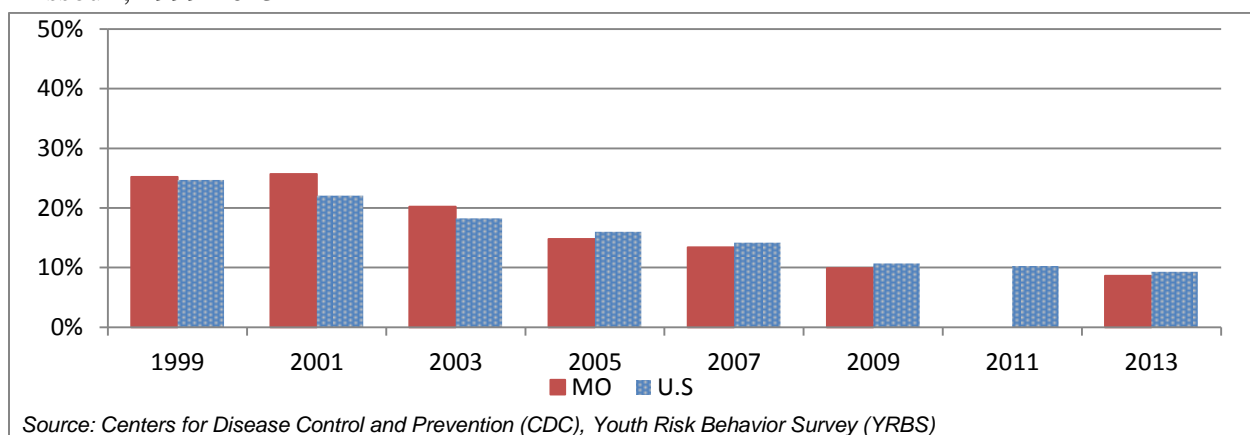
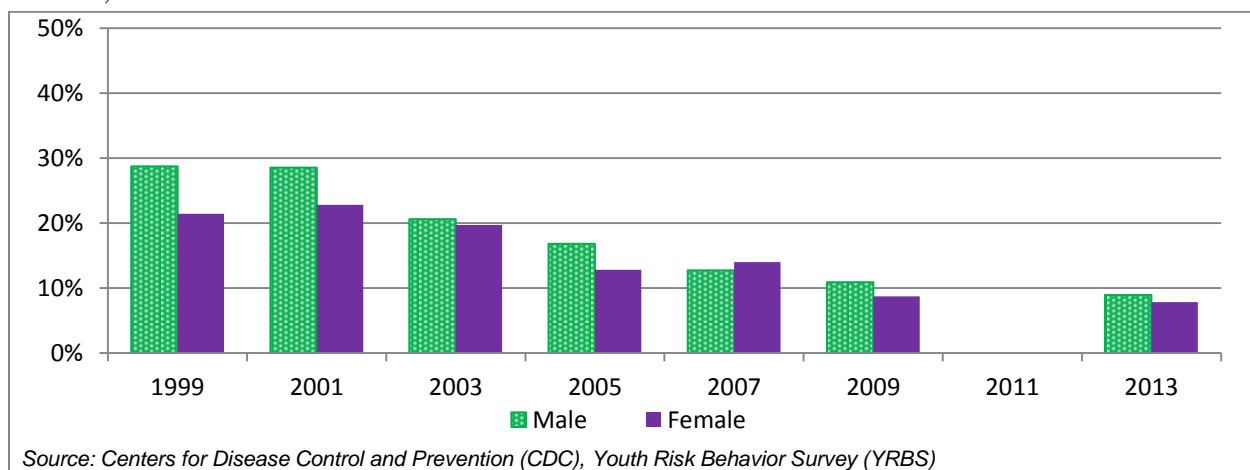


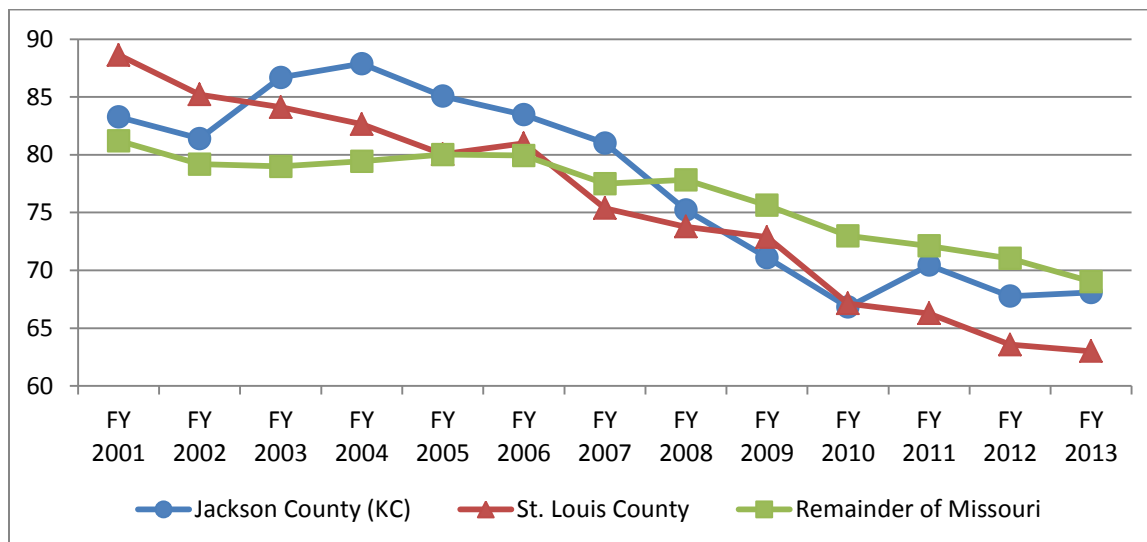
Figure 23: % Students in 9-12 Grades Reporting First Use of Cigarettes Before Age 13, By Gender, 1999-2013



## Per Capita Cigarette Consumption

- Per Capita data should be interpreted cautiously – it may not be sensitive in identifying areas where a high prevalence of heavy use are also seen with high rates of abstinence.
- Cigarettes sold per capita seem to indicate higher smoking rates in rural areas than in the major cities, although this number is declining.

Figure 24: Packs of Cigarettes Per Capita Sold in Missouri Based on Cigarette Tax Revenues: Fiscal Years 2001-2013



Source: Missouri Department of Revenue. Annual revenue reports. Total cigarette sales estimates are based on the cigarette tax portion of tobacco tax receipts. Breakouts for Jackson County and St. Louis County are based on supplemental county cigarette tax receipts.

## Smoking and Pregnancy

- While smoking data is still available from the Missouri Department of Health and Senior Services, this report will use PRAMS data to allow comparisons with the drinking while pregnant data. MDHSS remains available in the Status Report located here <http://dmh.mo.gov/ada/rpts/status.html>.
- The percentage of mothers who report smoking in the last 3 months of their pregnancy have remained consistent over time.

Figure 25: % of Missouri Births in which Mother Reported Smoking 1+ Cigarettes During the Last 3 Months of Pregnancy, 2007-2011

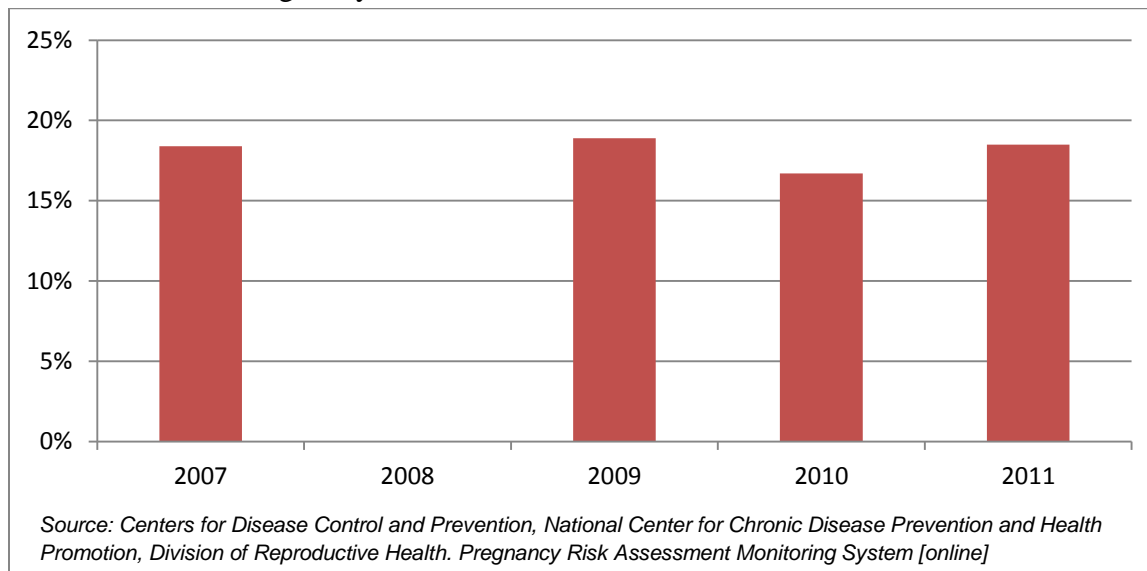


Table 5: % of Missouri Births in which Mother Reported Smoking 1+ Cigarettes During the Last 3 Months of Pregnancy by Maternal Age, 2011

Age	Smoked during Pregnancy	Did NOT Smoke during Pregnancy
Less than 20 yrs	29.0%	71.0% (CI: 59.5-80.3)
20-24 yrs	28.3%	71.7% (CI: 65.6-77.1)
25-34 yrs	13.8%	86.2% (CI: 83.0-88.9)
35+ yrs	8.9%	91.1% (CI: 84.8-94.9)

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. Pregnancy Risk Assessment Monitoring System [online]

Table 6: % of Missouri Births in which Mother Reported Smoking 1+ Cigarettes During the Last 3 Months of Pregnancy by Maternal Race, 2011

Age	Smoked during Pregnancy	Did NOT Smoke during Pregnancy
White, non-Hispanic	19.8%	80.2% (CI: 77.1-82.9)
Black, non-Hispanic	15.6%	84.4% (CI: 76.5-89.9)
Hispanic	0%	100% (Sample size = 39)
Other, non-Hispanic	20.7%	79.3% (CI: 65.0-88.8)

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. Pregnancy Risk Assessment Monitoring System [online]

Table 7: % of Missouri Births in which Mother Reported Smoking 1+ Cigarettes During the Last 3 Months of Pregnancy by Maternal Education Level, 2011

Years of Education	Smoked during Pregnancy	Did NOT Smoke during Pregnancy
Less than 12 years of education	34.8%	65.2% (CI: 56.2-73.2)
12 years of education	29.5%	70.5% (CI: 64.1-76.1)
More than 12 years of education	9.9%	90.1% (CI: 87.6-92.2)

Source: Centers for Disease Control and Prevention, National Center for Chronic Disease Prevention and Health Promotion, Division of Reproductive Health. Pregnancy Risk Assessment Monitoring System [online]



# Tobacco Consequences

## Mortality Rates

- Missouri has been higher than the national average for rate of deaths due to tobacco use for the last decade.

Figure 26: Rate of Deaths from Lung Cancer per 100,000 Population: U.S. and MO, 1998-2013

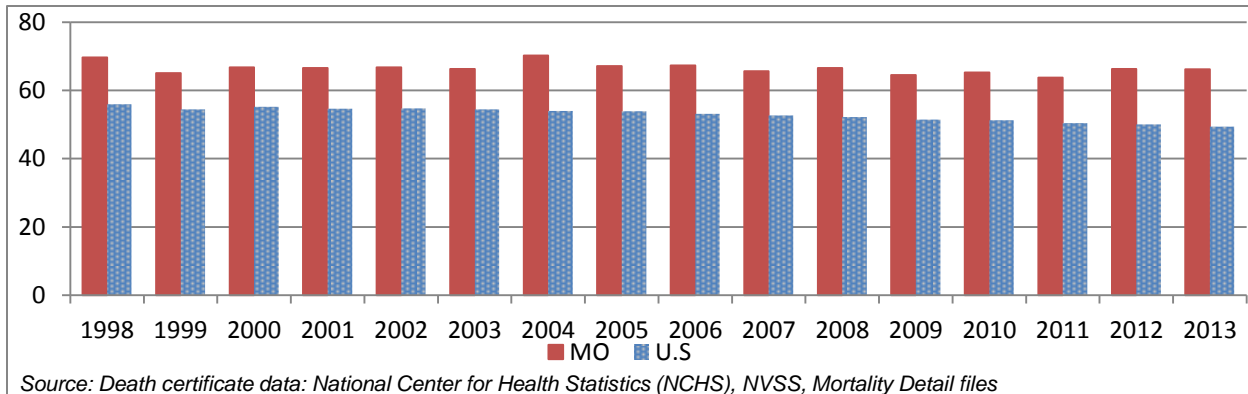


Figure 27: Rate of Deaths from COPD and Emphysema per 100,000 Population: U.S. and MO, 1998-2013

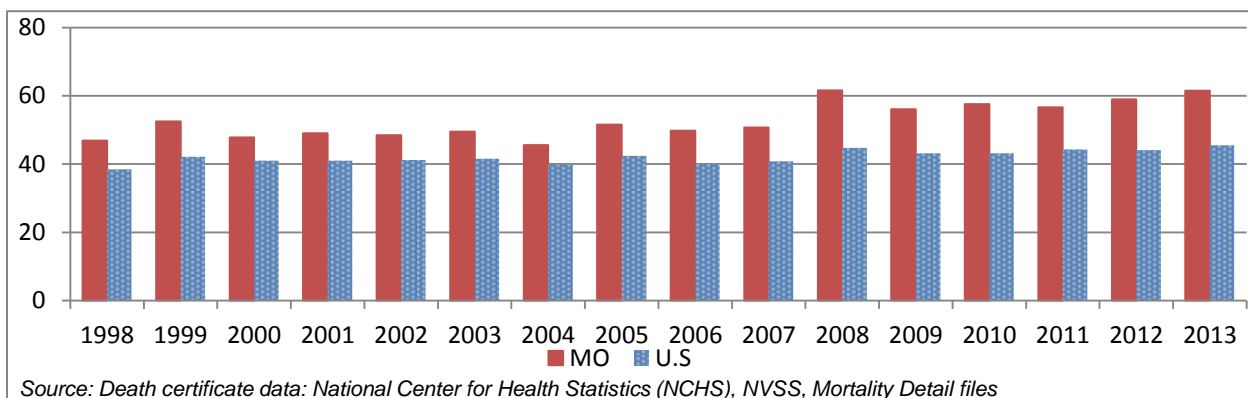
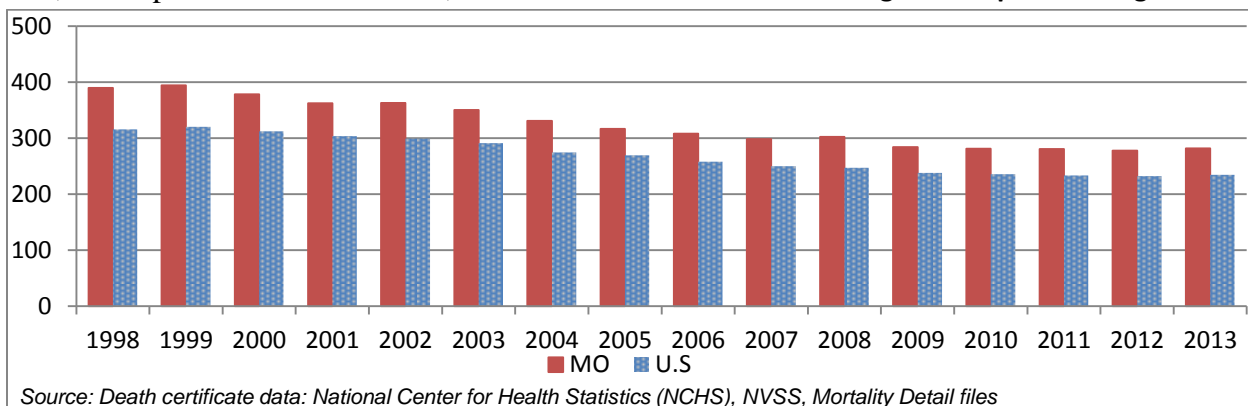


Figure 28: Rate of Deaths from Cardiovascular and Ischemic Cerebrovascular Disease per 100,000 Population: U.S. and MO, 1998-2013. **NOTE: Scale has changed from prior two figures.**



## Prescription Drugs

### Nonmedical Use of Pain Relievers in the Past Year

- In 2012-13, 5.3% of those in the 12-17 age group reported smoking cigarettes in the past month. This compares to 11.0% of 18-25 year olds and 3.6% in the 26+ age group.
- 4.7% of all Missourians 12 and older reported non-medical use of pain relievers in the past month. This is a number that has remained steady over the last decade and is similar to the national average (4.5%).
- Those in the 18-25 year old age group are most likely to have reported non-medical use of pain relievers in the past month.

Figure 29: Estimated Past-Year Non-Medical Use of Pain Relievers (%): U.S. and Missouri Ages 12 and Older, 2002-2013

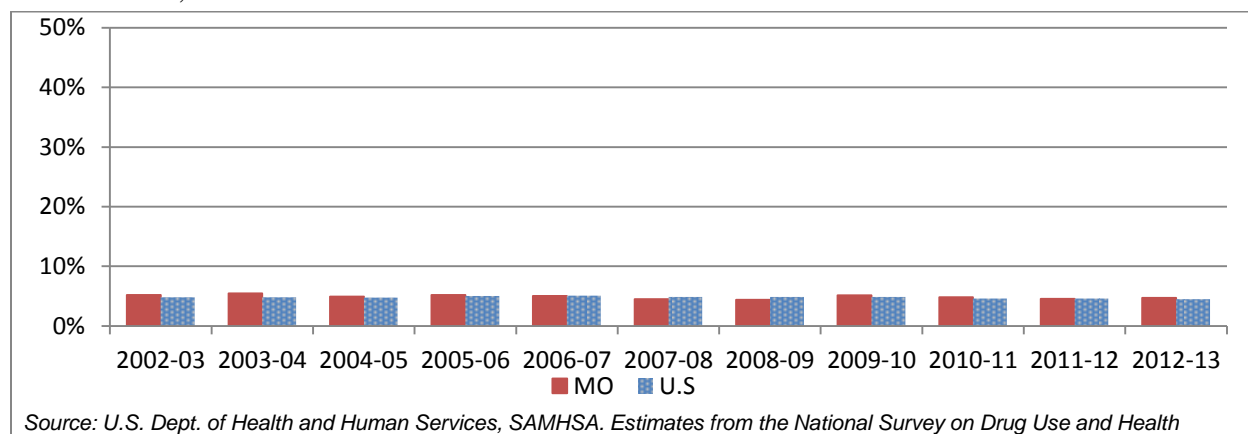
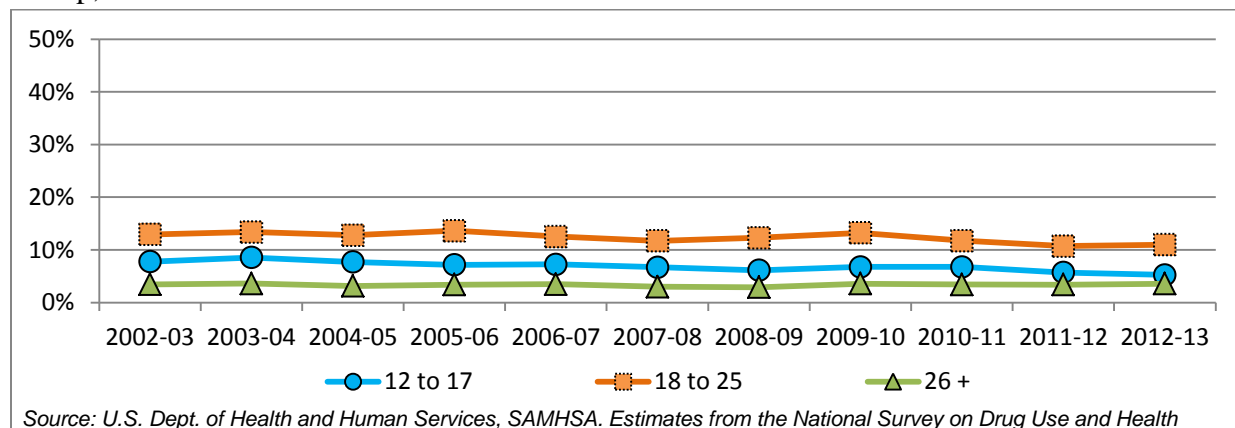


Figure 30: Estimated Past-Year Non-Medical Use of Pain Relievers (%) in Missouri, By Age Group, 2002-2012



## Illicit Drugs

### Marijuana

- In 2012-13, 7.1% of those in the 12-17 age group reported smoking marijuana in the last month. This compares to 20.2% of 18-25 year olds and 4.9% in the 26+ age group.
- 7.1% of all Missourians 12 and older reported using marijuana in the past month. This is a number that has increased slightly over the past few years and is becoming very close to the national average (7.4%).
- Those in the 18-25 year old age group are most likely to have used marijuana in the past month. Rates for the 18-25 and 26+ age groups increased slightly in the past year.

Figure 31: Estimated Past-Month Marijuana Use (%): U.S. and Missouri Ages 12 and Older, 2002-2013

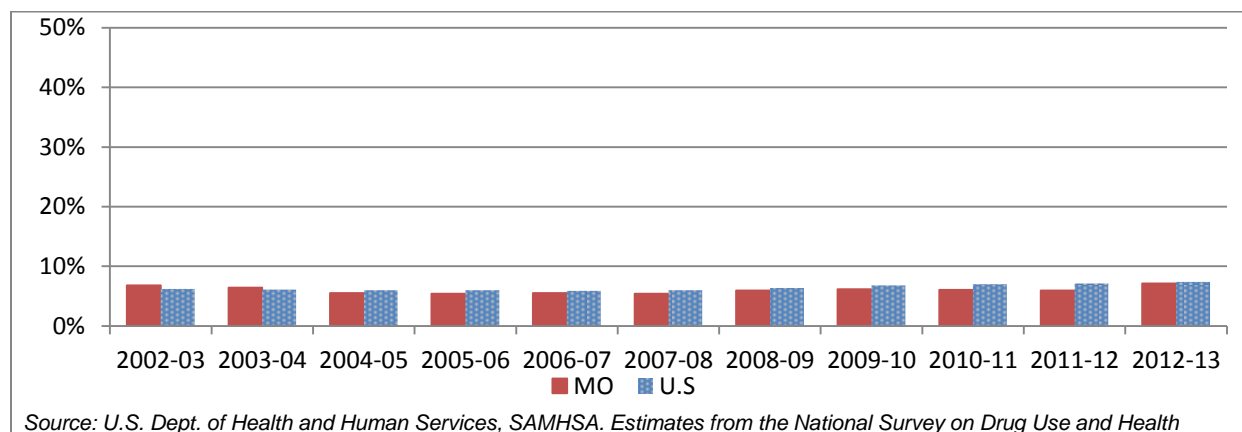
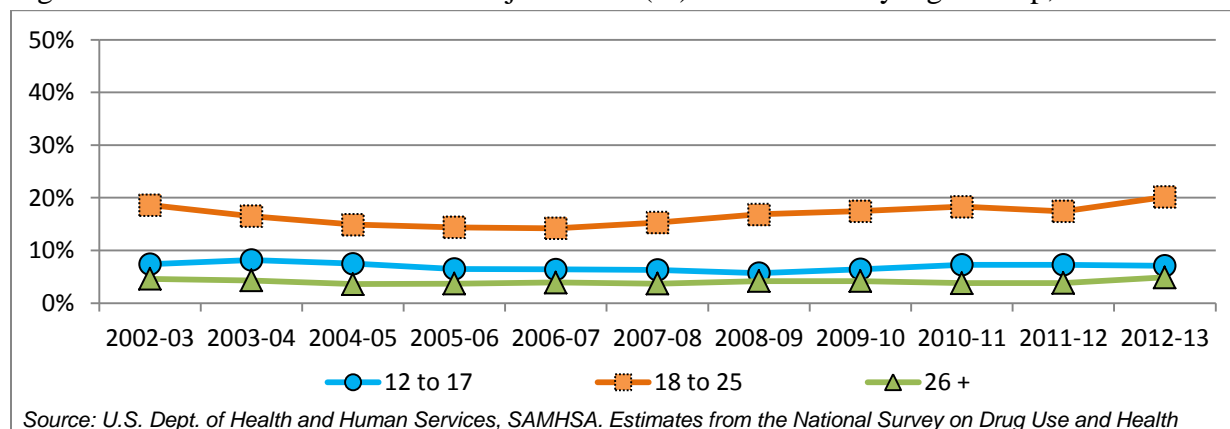
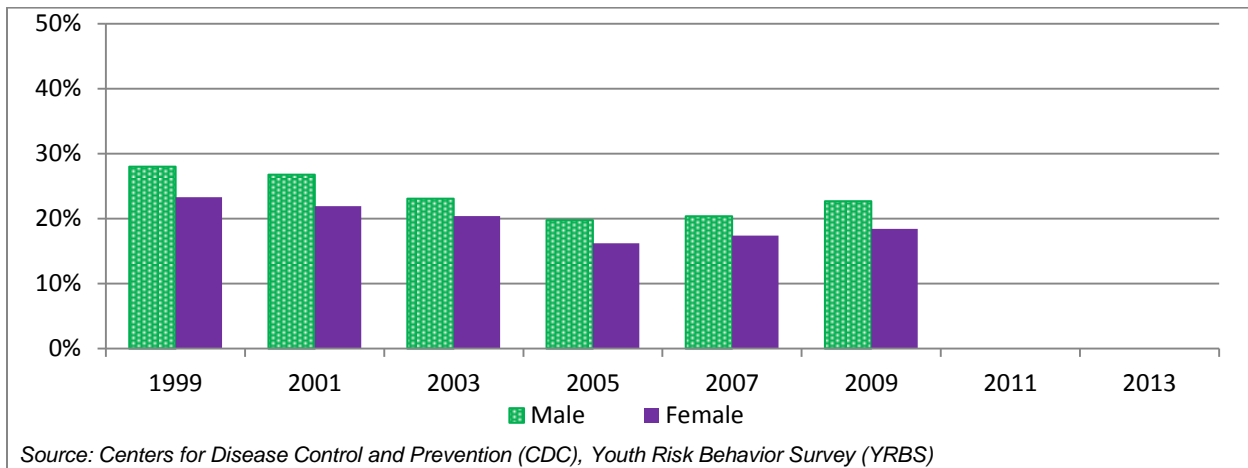


Figure 32: Estimated Past-Month Marijuana Use (%): In Missouri by Age Group, 2002-2013



- Males were more likely than females to report smoking marijuana prior to age 13.
- Missouri data are not available for 2011 or 2013.

Figure 33: % Students in 9-12 Grades Reporting First Use of Marijuana Before Age 13, By Gender, 1999-2009



## Other Illicit Drugs

- “Other illicit drugs” is defined as an illegal drug other than marijuana, or an abusable product that can be obtained legally, such as prescription drugs.
- In 2012-13, 3.4% in the 12-17 age group reported using illicit drugs, compared to 7.0% of 18-25 year olds and 2.4% in the 26+ age group.
- 3.1% of all Missourians 12 and older reported using illicit drugs in the past month. This is a number that has remained mostly stable over the last decade.
- Those in the 18-25 year old age group are most likely to have reported using illicit drugs in the past month.

Figure 34: Estimated Past-Month Other Illicit Drug Use (%): U.S. and Missouri Ages 12 and Older, 2002-2013

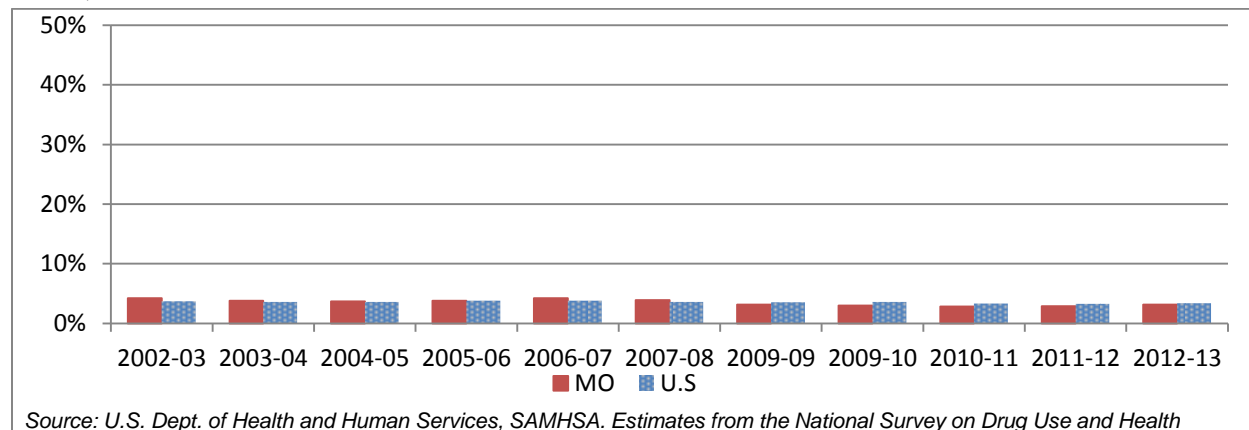
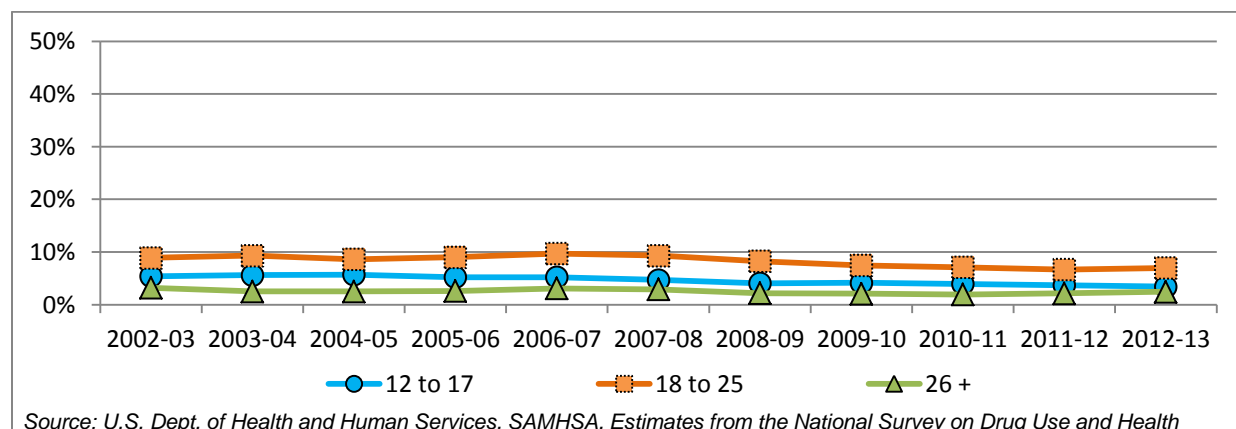


Figure 35: Estimated Past-Month Other Illicit Drug Use (%): In Missouri by Age Group, 2002-2013



- Looking at high school students only, heroin was the illicit drug least likely to be used at any point in a student's life while inhalants were most likely to have been used.
- Males were most likely to have used all of the illicit drugs with the exception of inhalants. Females, in more recent years, were more likely to have used inhalants at some point in their life.
- Only national data was available for 2011 and 2013 when this report was published. This report will use the YRBS data to allow for comparisons between drugs and over time. However, more current information for Missouri students and illicit drug use can be found in the Missouri Student Survey report (<http://dmh.mo.gov/ada/rpts/survey.html>).

Figure 36: % Students in 9-12 Grade Reporting they Ever Used of Cocaine in their Lifetime, U.S. and Missouri, 1999-2013

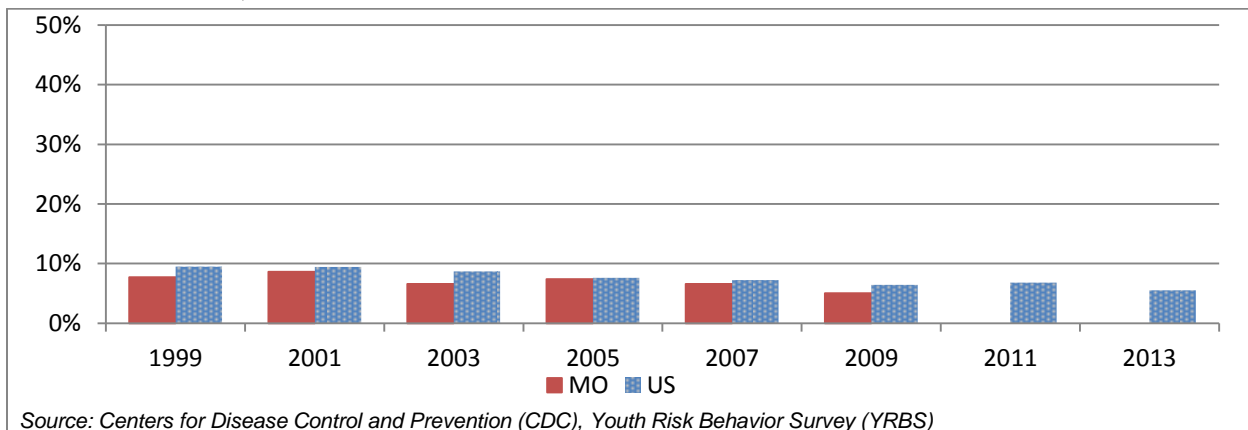


Figure 37: % Students in 9-12 Grades Reporting they Ever Used of Cocaine in their Lifetime, By Gender, 1999-2009

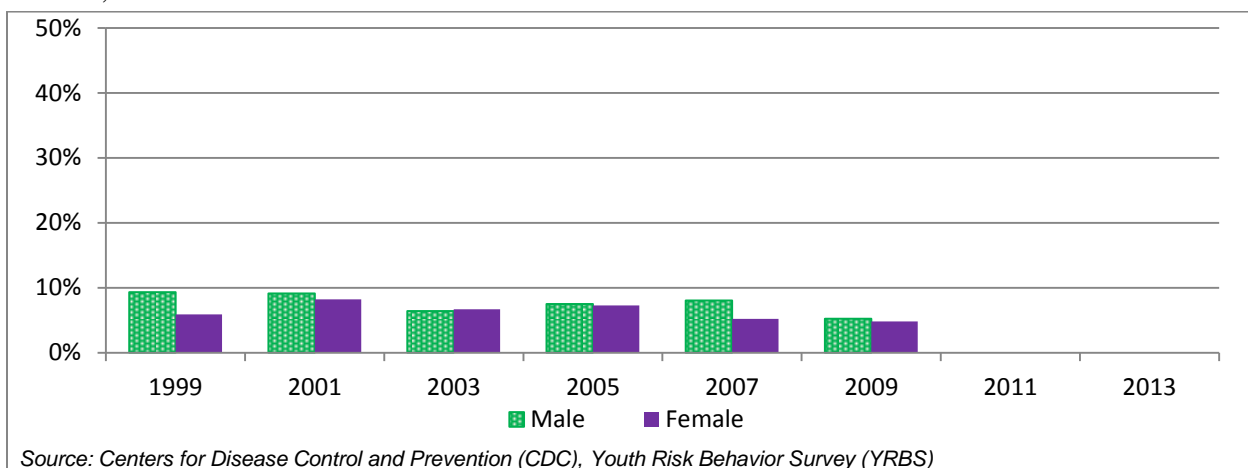




Figure 38: % Students in 9-12 Grade Reporting they Ever Used of Heroin in their Lifetime, U.S. and Missouri, 1999-2013

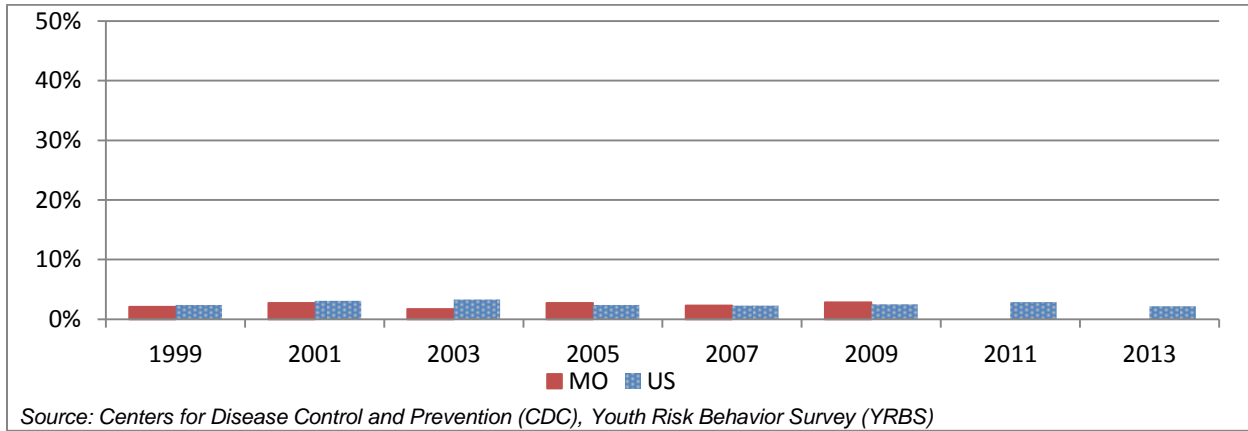


Figure 39: % Students in 9-12 Grades Reporting they Ever Used of Heroin in their Lifetime, By Gender, 1999-2009

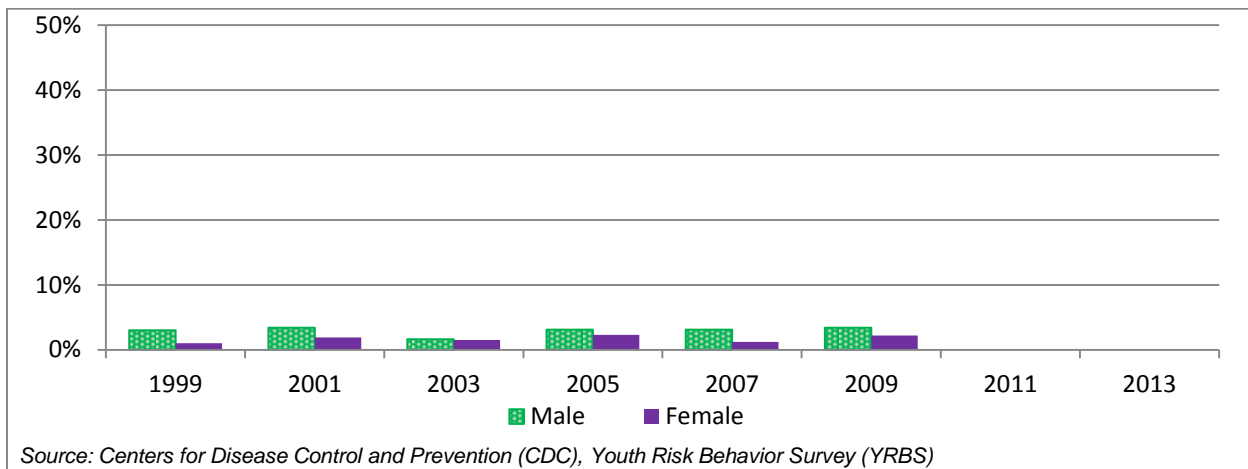


Figure 40: % Students in 9-12 Grade Reporting they Ever Used of Inhalants in their Lifetime, U.S. and Missouri, 1999-2013

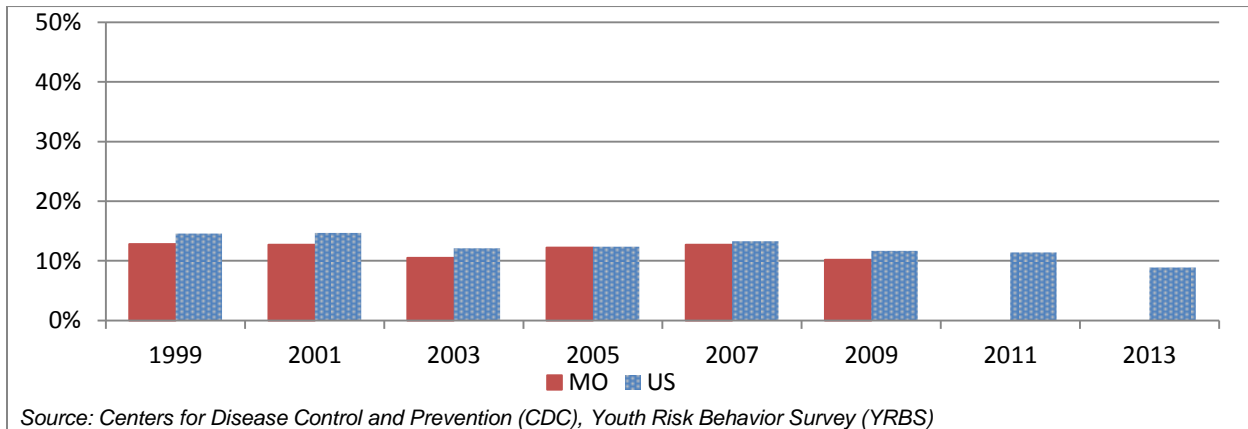


Figure 41: % Students in 9-12 Grades Reporting they Ever Used of Inhalants in their Lifetime, By Gender, 1999-2009

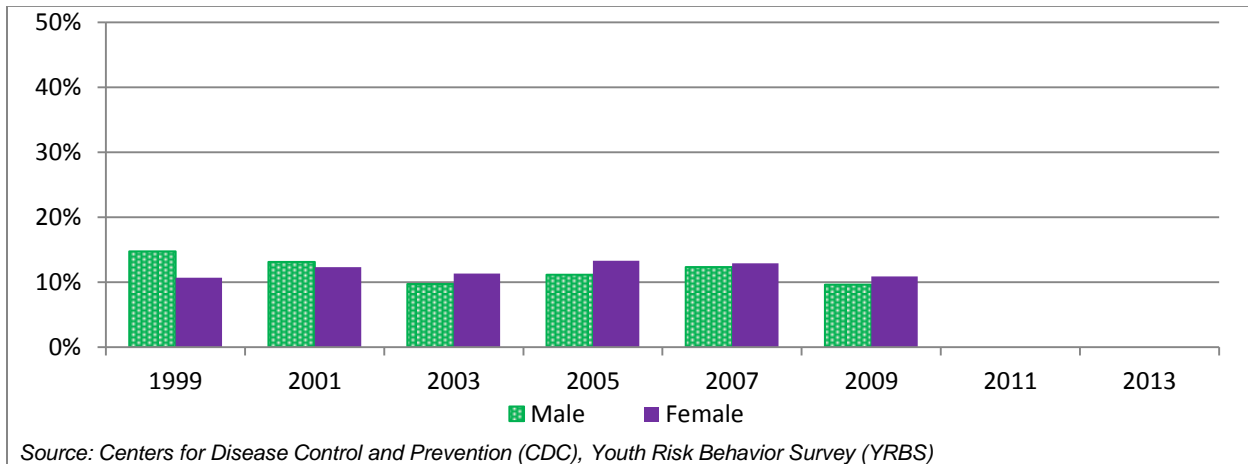


Figure 42: % Students in 9-12 Grade Reporting they Ever Used of Methamphetamine in their Lifetime, U.S. and Missouri, 1999-2013

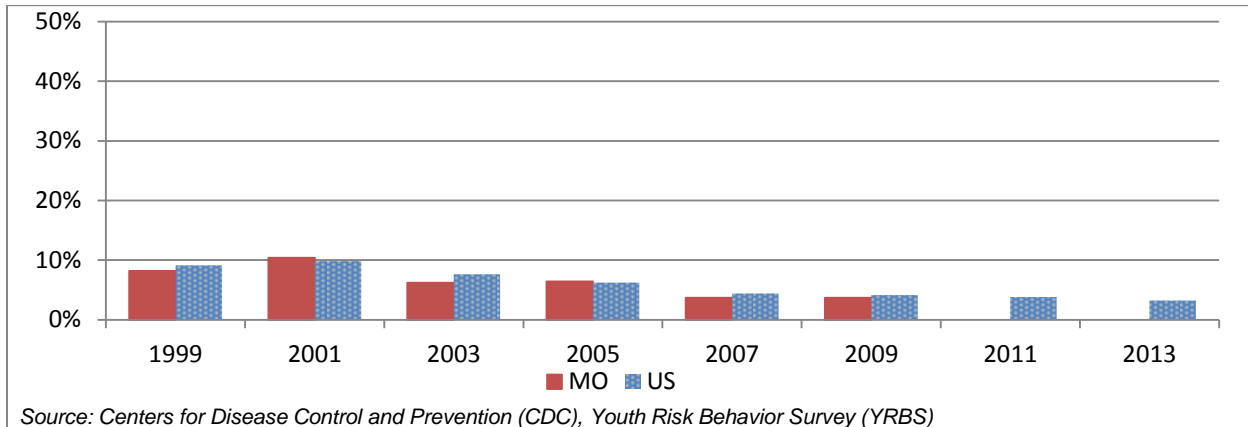


Figure 43: % Students in 9-12 Grades Reporting they Ever Used of Methamphetamine in their Lifetime, By Gender, 1999-2009

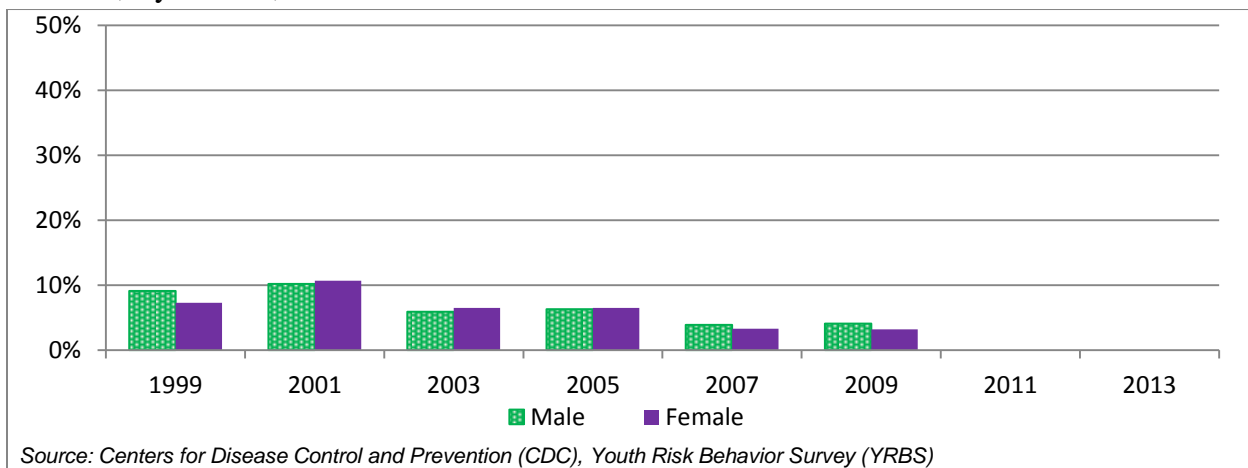


Figure 44: % Students in 9-12 Grade Reporting they Ever Used of Ecstasy in their Lifetime, U.S. and Missouri, 1999-2013. **Note: Data for 1999 and 2001 not available**

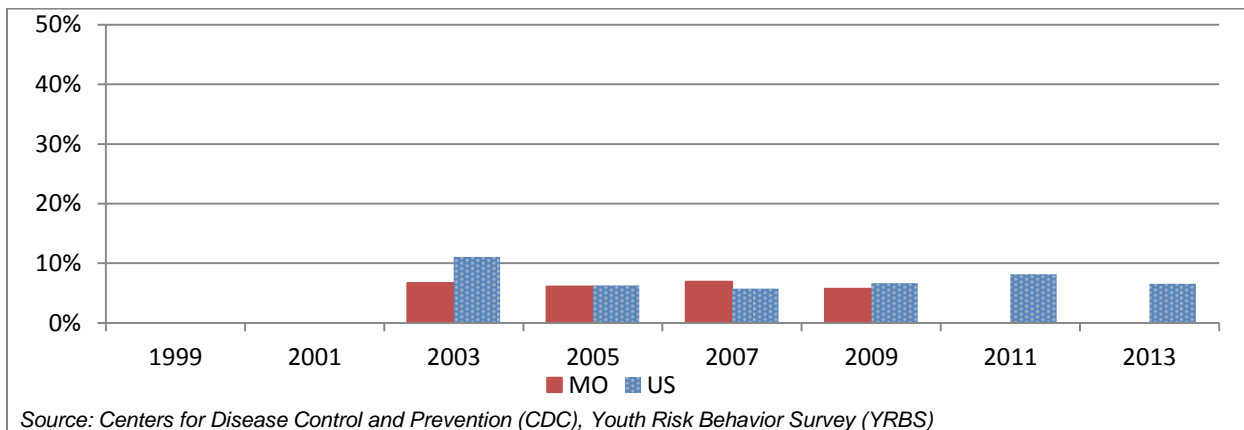


Figure 45: % Students in 9-12 Grades Reporting they Ever Used of Ecstasy in their Lifetime, By Gender, 1999-2009. **Note: Data for 1999 and 2001 not available**

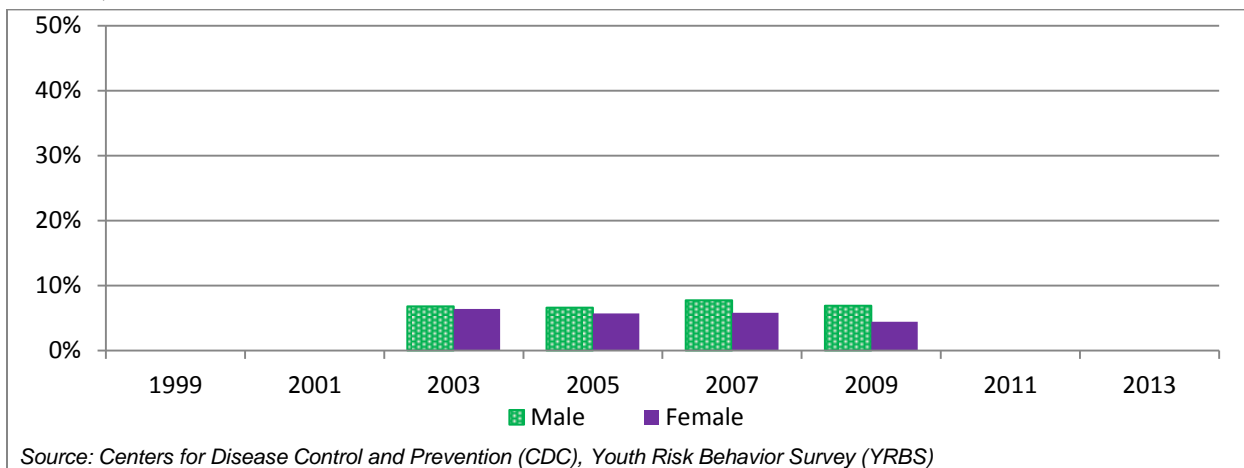


Figure 46: % Students in 9-12 Grade Reporting they Ever Used of Steroids in their Lifetime, U.S. and Missouri, 1999-2013.

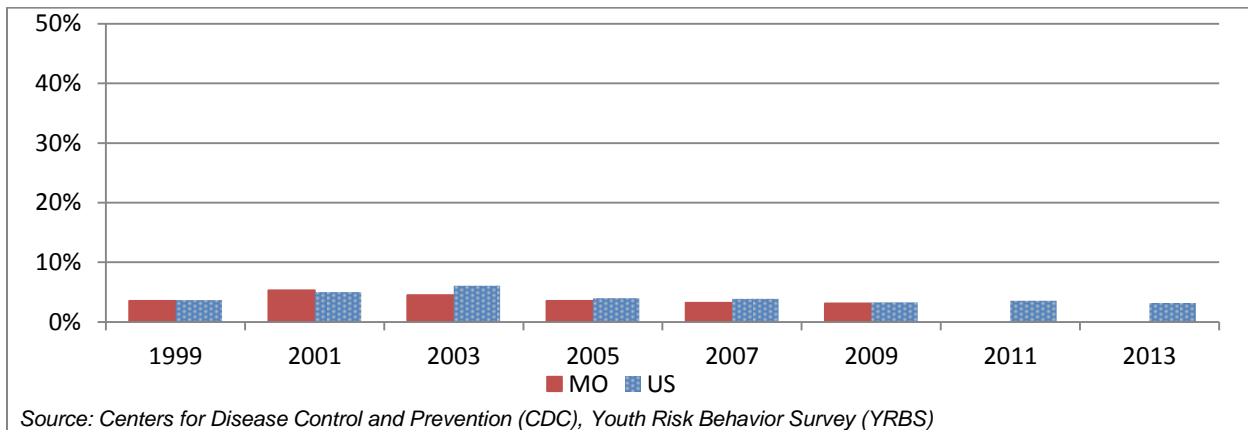
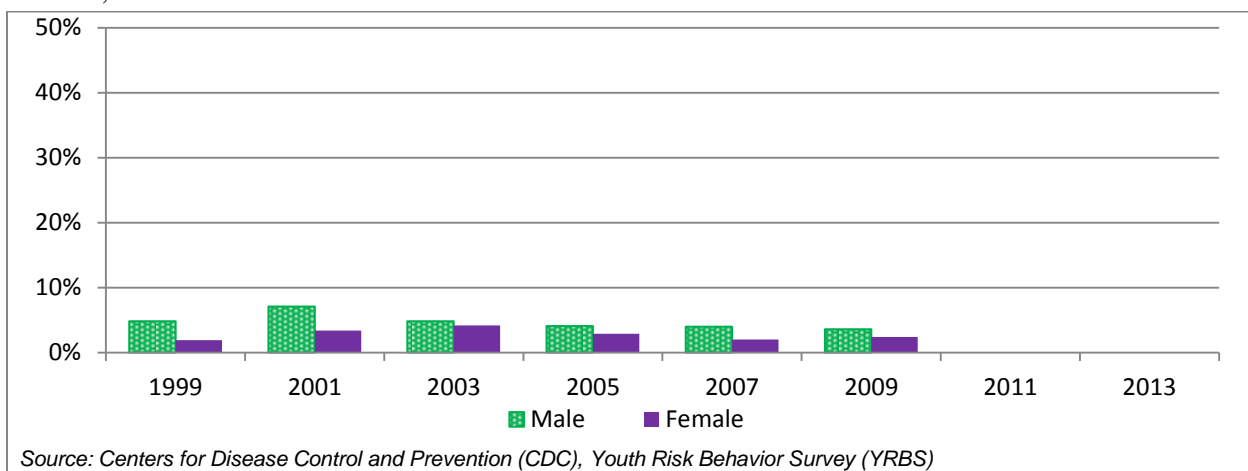


Figure 47: % Students in 9-12 Grades Reporting they Ever Used of Steroids in their Lifetime, By Gender, 1999-2009.



# Illicit Drug Consequences

## Illicit Drug-Related Mortality

- Missouri has been lower than the national average for rate of deaths due to drug related behaviors for the last decade.
- Missouri has been higher than the national average for rate of deaths related to drug related overdose / poisonings for the last several years. This number is also climbing for both Missouri and the U.S., although U.S. numbers appear to have leveled off.

Figure 48: Number of deaths from drug related behavior per 100,000 population: U.S. and Missouri, 1998-2010

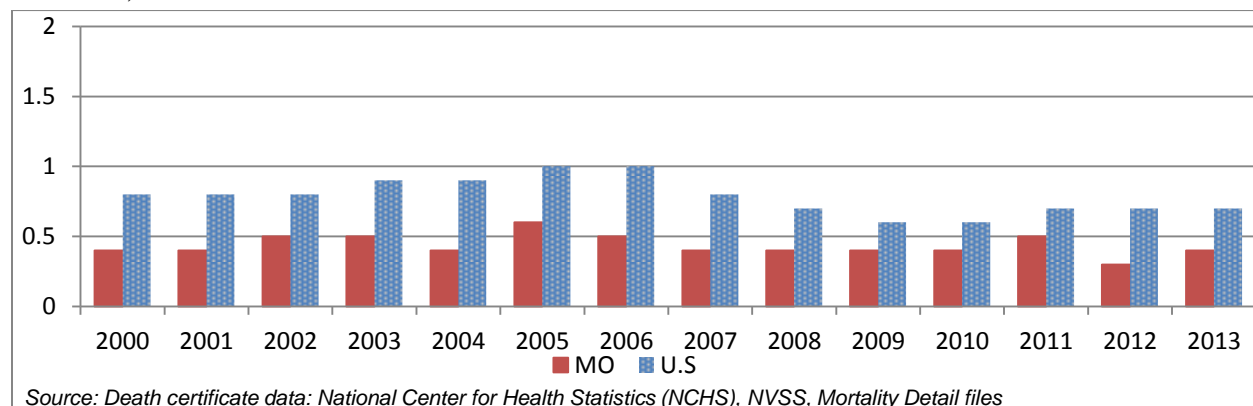
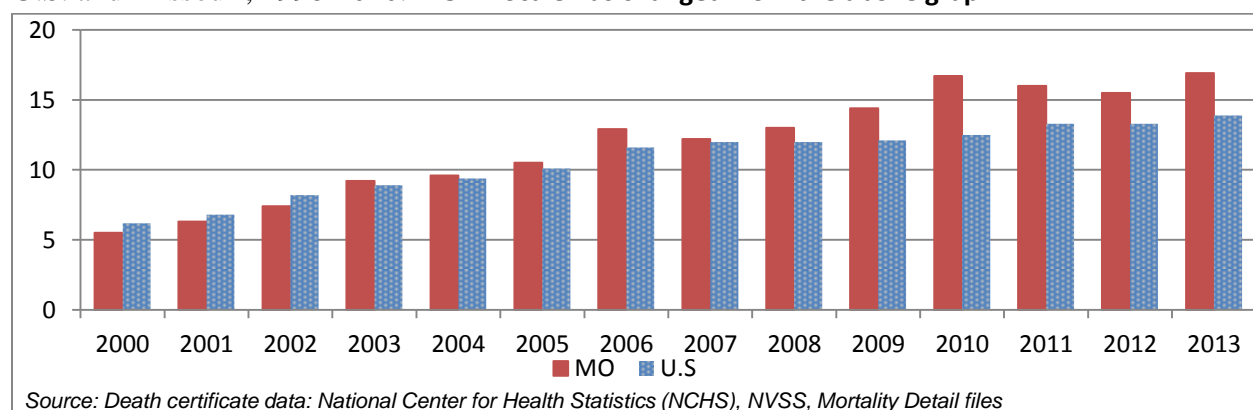


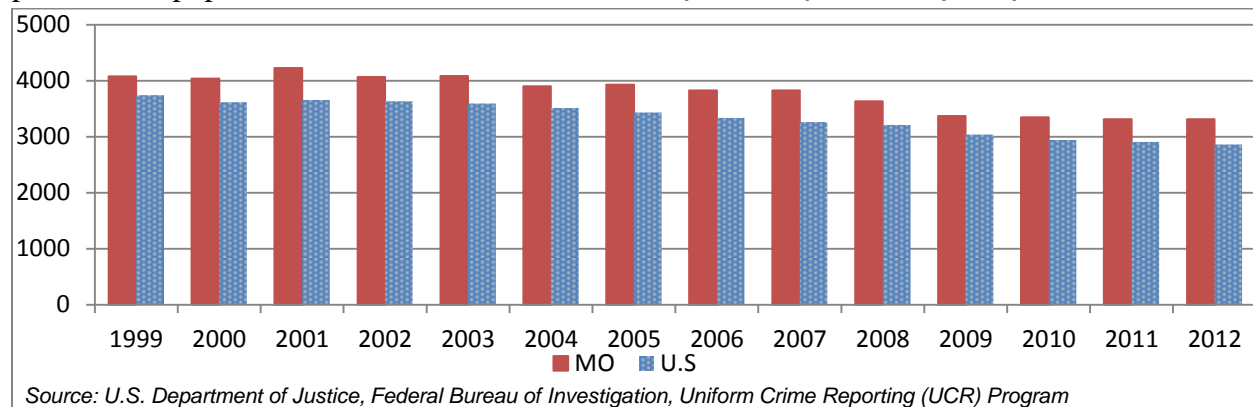
Figure 49: Number of deaths from drug related overdose/poisonings per 100,000 population: U.S. and Missouri, 1998-2010. **NOTE: Scale has changed from the above graph**



## Crime

- Missouri has been higher than the national average for number of property crimes for the last decade. Rates for both Missouri and the US are trending downward.

Figure 50: Number of property crimes (larceny, burglary, motor vehicle theft) reports to police per 100,000 population, 1999-2012. **Note: Rate now per 100k, previous reports per 1k**



## Illicit Drug Dependence or Abuse

- In 2012-13, 3.6% of those in the 12-17 age group reported dependence or abuse of an illicit drug in the past year. This compares to 7.9% of 18-25 year olds and 1.7% in the 26+ age group.
- 2.7% of Missourians 12 and older reported dependence on or abuse of any illicit drug. This is a number that has remained relatively steady over the past few years and is approximately equal to the national average.
- Those in the 18-25 year old age group are most likely to be dependent on or abusing illicit drugs.

Figure 51: % of Persons Aged 12 or Older Reporting Dependence on or Abuse of Any Illicit Drug in the Past Year: U.S. and Missouri Ages 12 and Older, 2002-2013

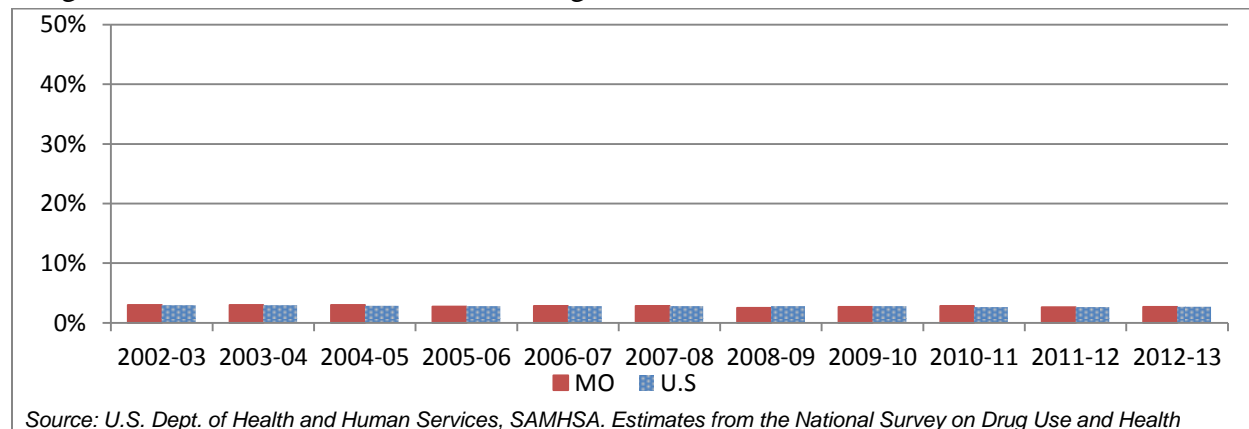
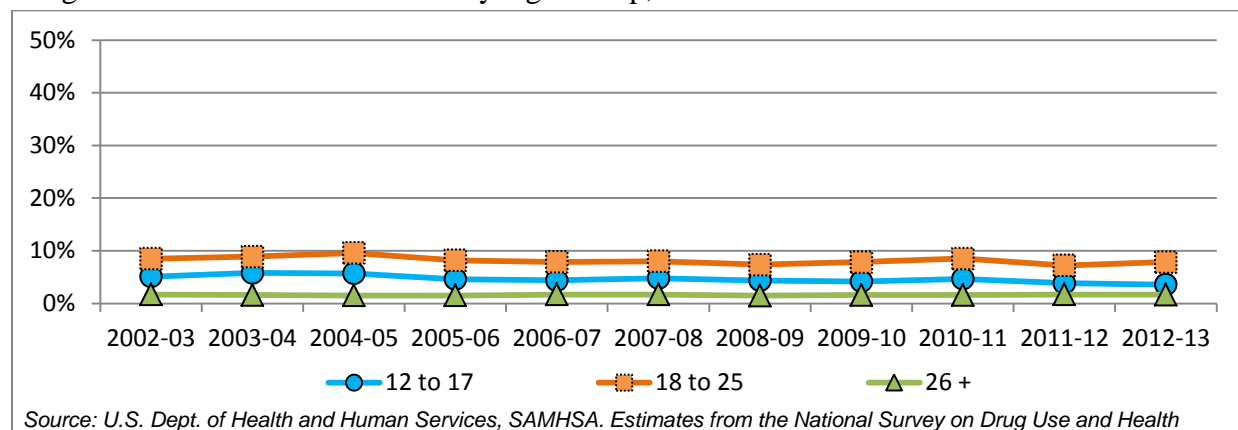


Figure 52: % of Persons Aged 12 or Older Reporting Dependence on or Abuse of Any Illicit Drug in the Past Year: In Missouri by Age Group, 2002-2013





# Key Risk and Protective Factors aka Intervening Variables



During the Strategic Prevention Framework State Incentive Grant (SPF SIG) and continuing into the Partnerships for Success Grant, Missouri coalitions were encouraged to use the Hawkins and Catalano Model of Risk and Protective Factors in their strategic planning process. This model suggests a variety of risk factors and several more additional protective factors that contribute to youth's drinking behavior and has been adapted to apply to other problem behaviors as well (drugs, violence, etc.). They were to use this model to decide what intervening variables might be at the root of the priority issue in their community, gather data on those intervening variables and then use data based decision making to determine which variables would be addressed under the grant. In order to continue building upon what communities learned in these efforts, Missouri will continue to define Risk and Protective Factors according to the Hawkins and Catalano Model.

The only data source currently available in Missouri for these factors is the Missouri Student Survey. This section borrows heavily from the 2014 Missouri Student Survey Report<sup>3</sup>. Data is collected in the Spring of even number years.

## Peer Engagement in the Problem Behavior

- Most youth surveyed had no friends who used cigarettes, marijuana or other illegal drugs. A majority of youth, however, did have at least one friend who drank alcohol.
- The large amount of youth who report having four or more friends engaging in substance use indicates that, if somebody is using, it is probably common among their social group.

Table 8: % of Youth who have Friends that Use Substances, 2014

	0 friends	1 friend	2 friends	3 friends	4 + friends
Cigarettes	66.2%	10.7%	8.0%	3.7%	11.4%
Alcohol	55.7%	9.9%	8.7%	4.5%	21.2%
Marijuana	68.3%	8.3%	5.7%	3.4%	14.3%
Other Illegal Drugs	88.8%	5.3%	2.5%	0.9%	2.5%

Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report.

<sup>3</sup>Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report: 6<sup>th</sup> – 12<sup>th</sup> grades; weighted for county, age group, gender, race, and Hispanicity; N ~ 70,000

## Perception of Harm

- Most youth believe that alcohol and drug use poses a moderate or great risk to them.
- However, over a fourth of all youth believe that alcohol and marijuana use is only slightly risky at best.

Table 9: Youths' Perception of Risk of Harm from Using Substances, 2014

	No Risk at All	Slight Risk	Moderate Risk	Great Risk
Cigarettes	6.0%	8.3%	19.4%	66.3%
Alcohol:				
One or two drinks nearly every day	12.0%	27.7%	32.2%	28.1%
Five or more drinks once or twice a week	8.4%	19.7%	32.7%	39.1%
Marijuana	18.6%	17.0%	23.8%	40.6%
Over the Counter Drugs <sup>2</sup>	6.4%	14.1%	30.3%	49.2%
Prescription Drugs <sup>2</sup>	5.2%	8.9%	23.7%	62.2%
Other Illegal Drugs <sup>3</sup>	4.4%	4.1%	13.2%	78.3%
Synthetic Drugs <sup>4</sup>	4.8%	5.9%	17.6%	71.6%

Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report.

- Most youth did not believe that the police would catch a substance user in their neighborhood. This is fairly consistent across all drugs.

Table 10: % of Youth who Think The Police would Catch Substance Users in their Neighborhood, 2012

	No!	no	yes	Yes!
Cigarettes	23.9%	45.0%	21.3%	9.8%
Alcohol	22.1%	44.1%	23.3%	10.6%
Marijuana	18.9%	35.4%	27.5%	18.2%

Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report.

## Availability

- Most youth thought that cigarettes and alcohol were either “very easy” or “sort of easy” to obtain.
- While youth thought that remaining substances were more difficult, over a third still thought marijuana was at least sort of easy to obtain. Approximately a fifth of all youth thought even other illegal drugs would be sort of easy to obtain.
- Interestingly, less than 1 out of 3 youth thought that prescription drugs would be “very easy” or “sort of easy” to obtain.

Table 11: Youths’ Perception of Substance Availability, 2014

	Very Easy	Sort of Easy	Sort of Hard	Very Hard
Cigarettes	25.6%	20.7%	17.5%	36.2%
Alcohol	27.1%	23.9%	18.0%	30.9%
Marijuana	19.3%	14.8%	14.3%	51.7%
Over the Counter Drugs	32.9%	19.6%	15.4%	32.1%
Prescription Drugs	12.9%	15.7%	21.8%	49.6%
Other Illegal Drugs	5.7%	8.3%	15.9%	70.1%
Synthetic Drugs	12.5%	13.1%	19.7%	54.8%

Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report.

## Perception of ‘wrongness’

- Most youth thought that it was “very wrong” to use all substances with the exception of alcohol.
- Youth were most likely to accept alcohol use.

Table 12: Youths’ Perception of Wrongfulness of Substance Use, 2014

	Not wrong at all	A little bit wrong	Wrong	Very wrong
Cigarettes	5.8%	8.8%	16.6%	68.9%
Alcohol:				
Any type of alcohol	13.0%	21.3%	19.5%	46.2%
One or two drinks every day	5.4%	10.6%	20.5%	63.5%
Five or more drinks once or twice a week	5.3%	8.9%	18.0%	67.8%
Marijuana:				
Any use	10.5%	9.8%	11.4%	68.2%
Once or twice a week	9.9%	8.2%	11.9%	70.0%
Over the Counter Drugs	2.5%	4.9%	15.3%	77.3%
Prescription Drugs	2.4%	4.6%	14.4%	78.6%
Other Illegal Drugs	1.6%	2.4%	8.5%	87.5%
Synthetic Drugs	1.9%	2.9%	11.1%	84.2%

Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report.

## Parental attitudes

- Most youth thought that their parents would think they were “very wrong” to use all of the substances asked about.
- However, again youth saw alcohol as the least “wrong” drug when considering their parents perception. When a dosage was indicated (1-2 drinks nearly every day), youth reported similar rates for alcohol as compared to other drugs.

Table 13: Youths’ Perception of Parental Perception of Wrongfulness of Substance Use, 2014

	Not wrong at all	A little bit wrong	Wrong	Very wrong
Cigarettes	1.9%	4.9%	12.2%	81.0%
Alcohol (dosage not indicated)	4.5%	13.9%	19.5%	62.0%
Alcohol (1-2 drinks nearly every day)	1.8%	4.6%	12.9%	80.7%
Marijuana (dosage not indicated)	2.9%	4.5%	9.3%	83.3%
Marijuana (1-2 times per week)	2.5%	3.1%	7.6%	86.7%
Over the Counter Drugs	1.3%	1.3%	7.5%	89.8%
Prescription Drugs	1.3%	2.4%	7.5%	88.8%
Synthetic Drugs	1.0%	0.9%	5.1%	93.1%

Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report.

## Rebellious attitudes

- Most youth did not report rebellious attitudes.
- However, almost half of the youth strongly agreed or agreed that fighting back is acceptable if one is provoked.

Table 14: Extent of Rebellious Attitudes, 2014

	Strongly disagree	Disagree	Agree	Strongly Agree
I ignore rules that get in my way.	32.9%	48.2%	16.3%	2.7%
It is all right to beat up people if they start the fight.	26.0%	28.5%	27.0%	18.4%
It is important to be honest with your parents, even if they become upset or you get punished.	4.0%	8.5%	46.1%	41.1%
I do the opposite of what people tell me, just to get them mad.	38.9%	47.3%	11.1%	2.7%

I think it is okay to take something without asking if you can get away with it.	56.3%	37.9%	4.4%	1.4%
I think sometimes it is okay to cheat at school.	44.0%	37.1%	15.5%	3.4%

Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report.

## School bonding

- The majority of youth had positive things to say about their school environment.
- The areas where youth showed the most negative attitudes were the school notifying their parents of their achievements and the teachers praising the students directly.

Table 15: Perceptions and Attitudes toward School by Youth, 2014

	Strongly disagree	Disagree	Agree	Strongly Agree
My teacher(s) notice(s) when I am doing a good job and let me know about it.	5.6%	21.5%	59.8%	13.1%
The school lets my parents know when I have done something well.	15.7%	40.9%	36.1%	7.3%
In my school, rules are enforced fairly.	9.4%	24.5%	53.8%	12.3%

Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report.



# Key Mental Health Indicators





## National Comparison

- Rates for having at least one major depression episode are typically higher in Missouri than nationally.
- Missourians do not show a lot of variability in depressive episodes between the age categories. However, the wide range of the 26+ age group may be obscuring other peaks that occur later in life.

Figure 53: % of Adults Having at Least One Major Depressive Episode in Past Year: U.S. and Missouri (18+), 2004-2013

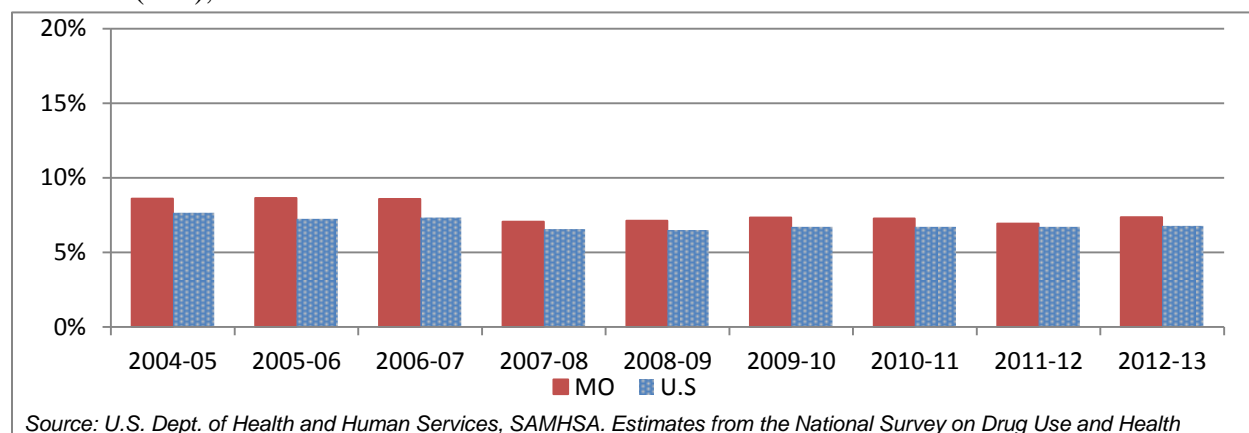
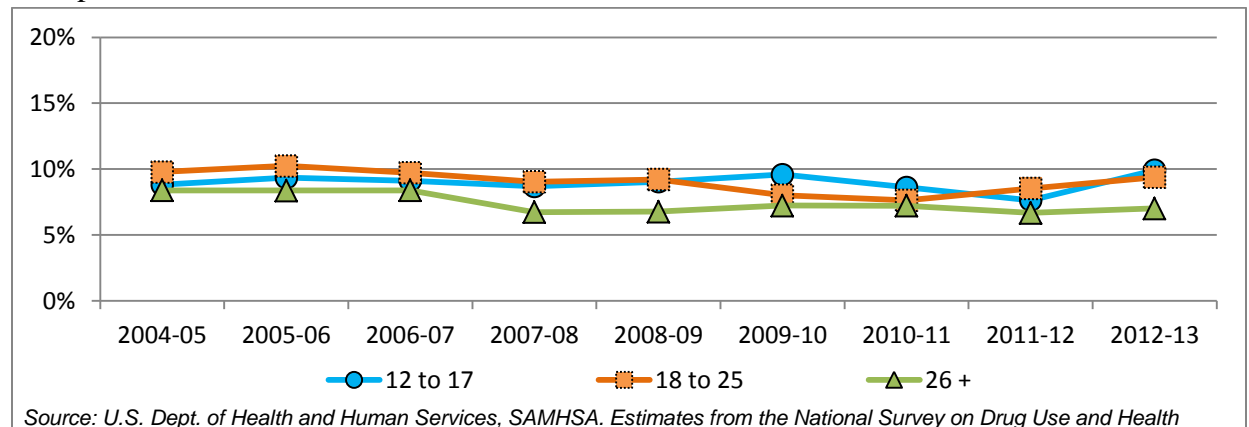
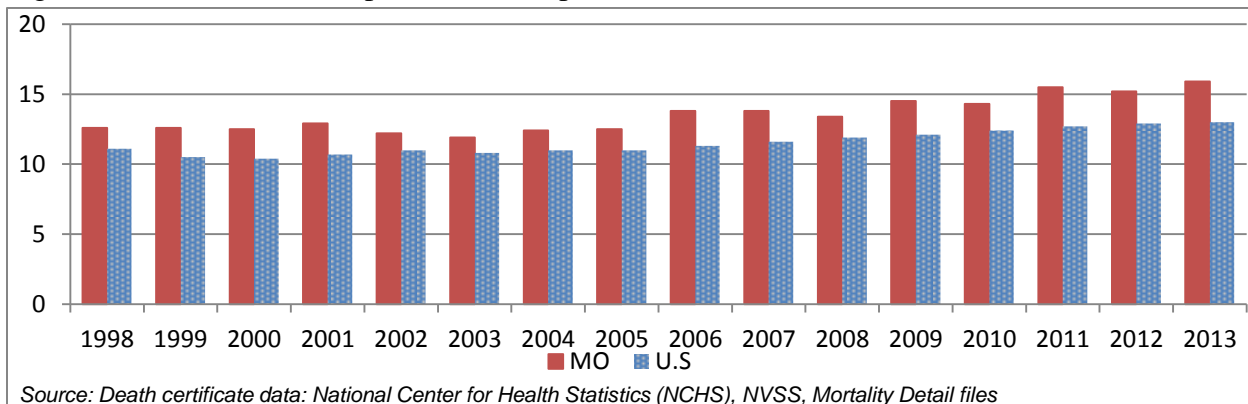


Figure 54: % of Persons Having at Least One Major Depressive Episode in Past Year: by Age Group, 2004-2013



- According to NSDUH, Missouri has been slightly higher than the national average for having serious thoughts about suicide in the last year. The Missouri rate for 2011-12 was 3.95% and 2012-13 was 4.05%. This compares to the national average of 3.77% and 3.89% respectively.
- Missouri has been higher than the national average for rate of deaths due to suicide for the last decade, and the rate continues to climb.

Figure 55: Rate of Suicides per 100,000 Population: U.S. and Missouri, 1998-2013



## Missouri Youth

According to the Missouri Student Survey<sup>4</sup>:

- 20.2% said they were sad in the last month “often” or “always”
- 11.8% said they felt hopeless about their future “often” or “always”
- 17.5% said they felt like not eating or eating more than usual while 18.4% slept more or less than usual “often” or “always”
- 11.7% of youth surveyed reported that they considered suicide in the last year
- 8.6% made a plan to commit suicide

Table 16: Number of Suicide Attempts in the Past Year (12 months), 2014

	0 times	1 time	2 or 3 times	4 or 5 times	6 or more times
How many times did you actually attempt suicide?	95.0%	2.8%	1.4%	0.3%	0.4%

Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report.

- Self-harm is defined as attempting to harm oneself on purpose in a deliberative, but not suicidal, way. While the majority of youth did not report any attempt at self-harm in their lifetime, 13.5% reported one or more incidents. The most common method of self-harm was “cut, scratched or hit myself on purpose”.

Table 17: Percent of Students Reporting Lifetime Types of Self-Harm, 2014

	Yes	No
Cut, scratched or hit myself on purpose to hurt myself	11.7%	88.3%
Swallowed more medicine than a doctor told me to take to hurt myself	2.0%	98.0%
Used drugs or alcohol to hurt myself	1.8%	98.2%
Swallowed something on purpose that was not food, drink or medicine in order to hurt myself	0.5%	99.5%
Other	3.2%	96.8%

Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report.

<sup>4</sup> Source: Depue, S, Hendricks, M, Matthews, J & Sale, E (2014) Missouri Student Survey Report: 6<sup>th</sup> – 12<sup>th</sup> grades; weighted for county, age group, gender, race, and Hispanicity; N ~ 70,000

## Treatment Data

- Of the known diagnoses, Division of Behavioral Health: Psychiatric Services treats mood (affective) disorders most commonly followed by anxiety disorders and psychotic disorders.

Table 18: Diagnoses of Clients Served by Psychiatric Services, 2008-2013

Diagnosis Category	FY2008	FY2009	FY2010	FY2011	FY2012	FY2013
Adjustment Disorder	2,957	3,007	2,674	2,826	2,987	2,870
Anxiety Disorder	11,867	13,325	15,459	17,381	19,960	22,842
Dementia	276	249	284	199	209	132
Developmental Disorder	727	767	827	884	959	1,032
Impulse Control Disorder	8,220	7,964	8,889	9,976	11,333	11,504
Mood Disorder	30,921	33,012	35,387	38,273	42,599	45,193
Personality Disorder	7,038	7,341	7,079	6,758	6,892	4,694
Psychotic Disorder	11,584	12,439	13,021	13,602	14,509	14,602
Sexual Disorder	171	175	176	160	162	276
Other Diagnosis	4,562	4,538	4,599	4,500	4,764	4,462
Diagnosis Unknown	20,965	21,232	16,016	8,161	9,681	8,005
Total Numbers Served	72,993	75,122	73,731	70,287	78,254	77,539

Source: Division of Comprehensive Psychiatric Services -- Clinical Data.

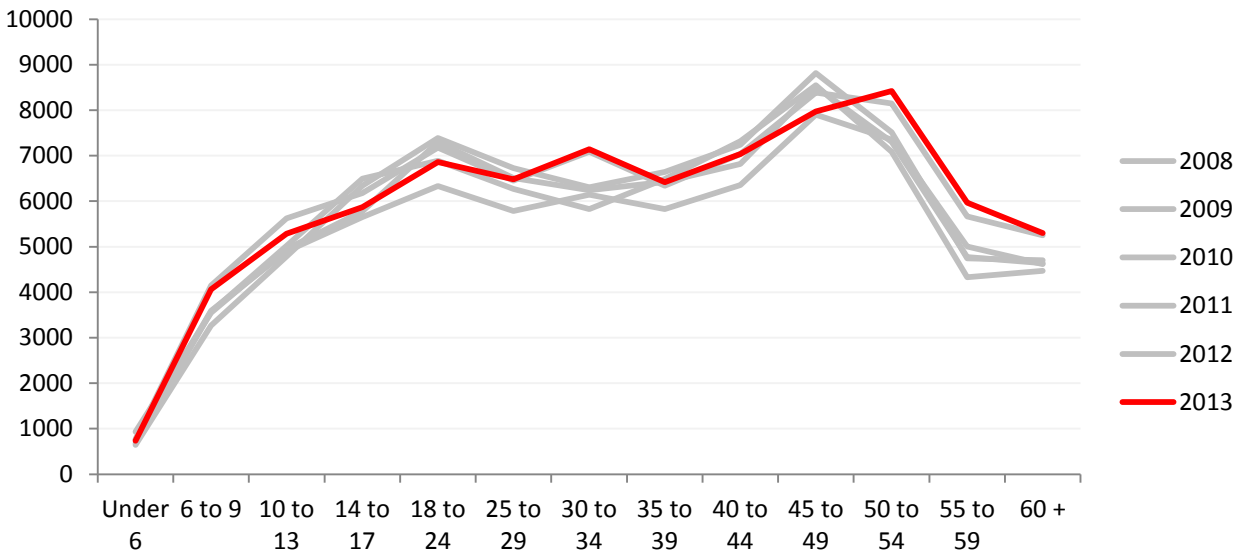
NOTE: The total number of diagnoses is larger than the number served because some individuals had more than one type of disorder.

- Psychiatric Services serves approximately equal number of males and females. The majority of clients are Caucasian, followed by African American. This distribution is similar to that of the state's population.<sup>5</sup>
- Most clients are referred by themselves, family or a friend.<sup>8</sup>

<sup>5</sup> 2014 Status Report, <http://dmh.mo.gov/docs/ada/rpts/status2014/missouri.pdf>

- As Missourians age out of childhood, the numbers served by CPS increase. This peaks for the first time at the 18-24 age group and most dramatically in the 40s and 50s.
- Missourians in their mid to late 40s are typically most commonly served by CPS, although in 2013 this shifts into the early 50s.

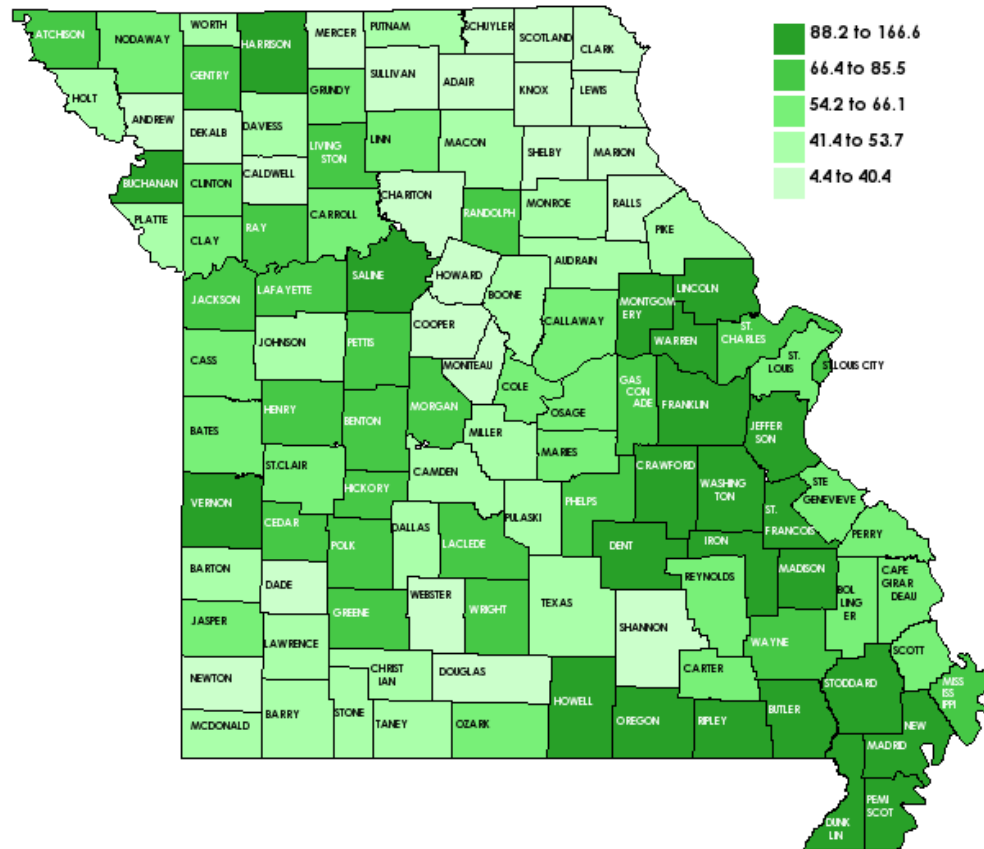
Figure 56: Number of Clients Served by Comprehensive Psychiatric Services, by Age Group, 2008-2013



Source: Division of Comprehensive Psychiatric Services -- Clinical Data.

- Hospital admissions for affective disorders show highest rates in the southeast and lowest rates in the north east and central parts of the state.

Figure 57: Inpatient Hospitalizations for Affective Disorders Rates per 10,000: Residents of Missouri, Aggregate data 2012



Source: Division of Health and Senior Services, MICA database

# High Risk Subpopulations



The Missouri Behavioral Health Epidemiology Workgroup (MO-BHEW) surveyed those who work in the behavioral health field in Missouri on two occasions (2011 and 2013), asking about their data needs. Both of these surveys indicated a desire for data on high risk subpopulations. In 2013, the MO-BHEW identified high risk subpopulations which had data available on substance use and mental health. Below, data is reported on two of those identified subpopulations: lesbian, gay, bisexual, transgender, and queer (LGBTQ) individuals and veterans. We are currently working to identify additional state-level data sources for other identified high risk populations such as those with disabilities and homeless persons.

## LGBTQ

Data on the lesbian, gay, bisexual, transgender, and queer (LGBTQ) population was limited to a sample of high school and college-aged youth (N = 157) from the Missouri School Climate Survey conducted by the Missouri GSA Network (Keenan, Morgan, Seinn, and Erin, 2013). Approximately 60% of the sample identified as LGBTQ, and 40% identified as straight. About 20.9% of sample reported being gay, 11.8% lesbian, 21.8% bisexual, 12.7% reported that they were questioning and 14.5% identified as queer. About 1.8% of the sample identified as transgender. The sample was largely female (67%) and White (82.7%), with about 5.5% of the sample identifying as African-American/Black, .9% as Hispanic, 6.3% identifying as another ethnic/racial group.

### Substance Abuse Indicators

- Students who identified as lesbian, gay, bisexual, transgender, or questioning (LGBTQ) are more likely to report using tobacco, smoking cigarettes or hookah in the past month than students who identified as straight.

Table 19: Estimated Past-Month Tobacco, Cigarette, or Hookah Use (%) in Missouri, By Sexual Orientation, 2013

	% LGBTQ	% Straight
Reported using tobacco, smoking cigarettes, or hookah in the past 30 days	32.35%	13.63%

Source: Missouri School Climate Survey



## Mental Health Indicators

- Students who identify as LGBTQ are twice as likely as students identifying as straight to report having suicidal thoughts or feeling sad or depressed at least sometimes.

Table 20: % Having Thoughts about Committing Suicide in Missouri, By Sexual Orientation, 2013

	% LGBTQ	% Straight
Reported having thoughts about committing suicide	66.18%	31.82%

Source: Missouri School Climate Survey

Table 21: % Feeling Sad or Depressed at Least Sometimes in Missouri, By Sexual Orientation, 2013

	% LGBTQ	% Straight
Reported feeling sad or depressed at least sometimes	60.0%	25.0%

Source: Missouri School Climate Survey

## Veterans

Data on veterans is available from both the BFRSS and NSDUH. While there is a wealth of data regarding tobacco use among veterans, data on drugs and mental illness is more limited. Where possible, Missouri veterans are compared to both veterans nationally and Missouri civilians. Although much of the available data suggests lower rates of tobacco, alcohol, drug use, and mental illness among Missouri veterans, research suggests that long and multiple deployments, combat exposure, and physical injuries put veterans at greater risk of abusing substances and developing mental health difficulties<sup>6</sup>. In particular, national data suggests that while tobacco and illicit drug use among veterans has declined over time, prescription drug abuse and heavy alcohol use are on the rise<sup>8</sup>.

Note that due to a data processing error, NSDUH numbers in this section have been adjusted from those reported last year.

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<sup>6</sup> National Institute on Drug Abuse, (2011). *Topics in Brief: Substance Abuse among the Military, Veterans, and their Families – April 2011*. Washington, DC: NIDA. Retrieved from <http://www.drugabuse.gov/sites/default/files/veterans.pdf>

### Substance Abuse Indicators

- Slightly less veterans than civilians reported being current cigarette smokers.
- Compared to female civilians, slightly more female veterans engage in heavy drinking, while male veterans are less likely than male civilians to engage in heavy drinking.
- More civilians than veterans binge drink, regardless of gender.

Table 22: Veteran Health Indicators (%) in Missouri, 2012

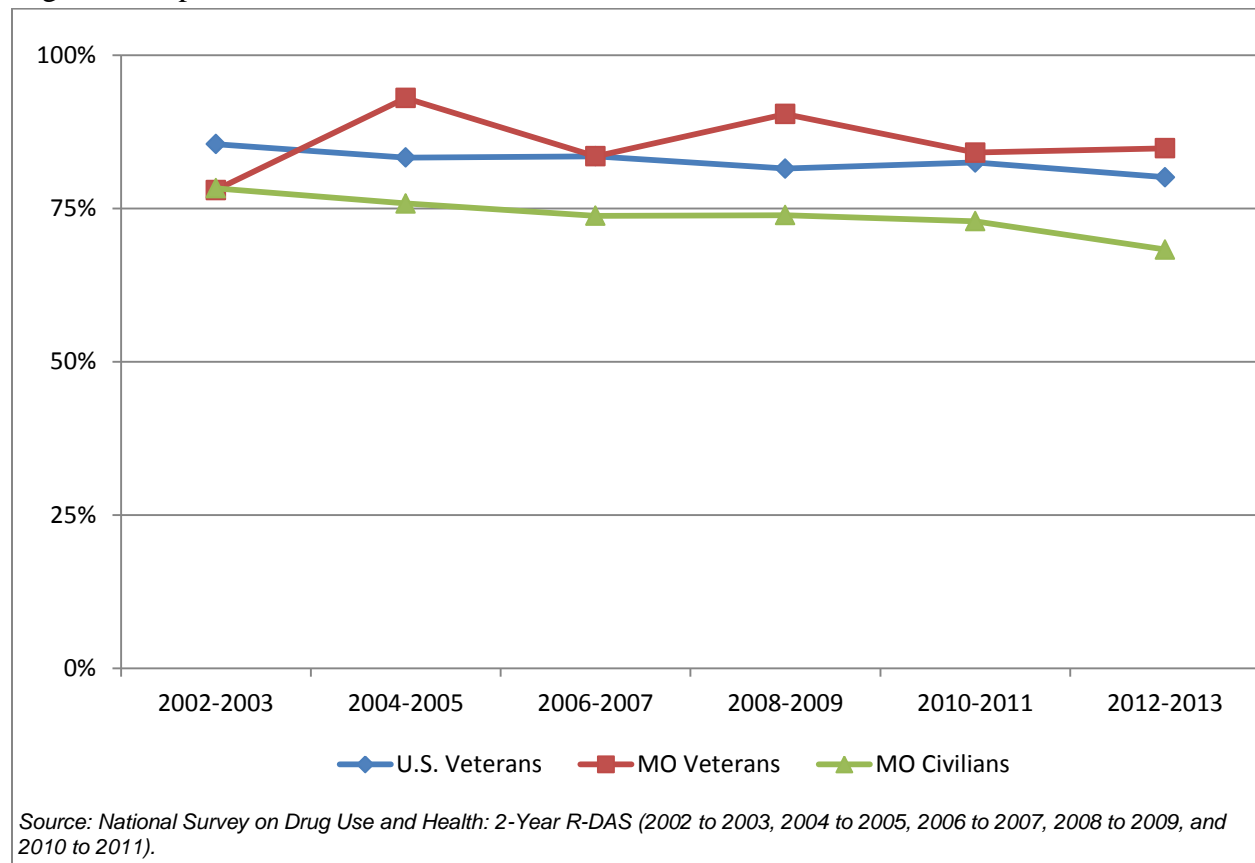
Health Indicator	% MO Veterans	% MO Civilians
Currently smokes cigarettes	22.65%	24.07%
Females who had more than 1 drink <u>per day</u> in the past 30 days (Heavy drinking)	6.52%	4.52%
Males who had more than 2 drinks <u>per day</u> in the past 30 days (Heavy drinking)	7.68%	8.29%
Females who drank 4 or more drinks on 1 or more occasion in the past 30 days (Binge Drinking)	7.38%	11.52%
Males who drank 5 or more drinks on 1 or more occasion in the past 30 days (Binge Drinking)	14.99%	25.83%

Source: Behavioral Risk Factor Surveillance System

## Tobacco Use

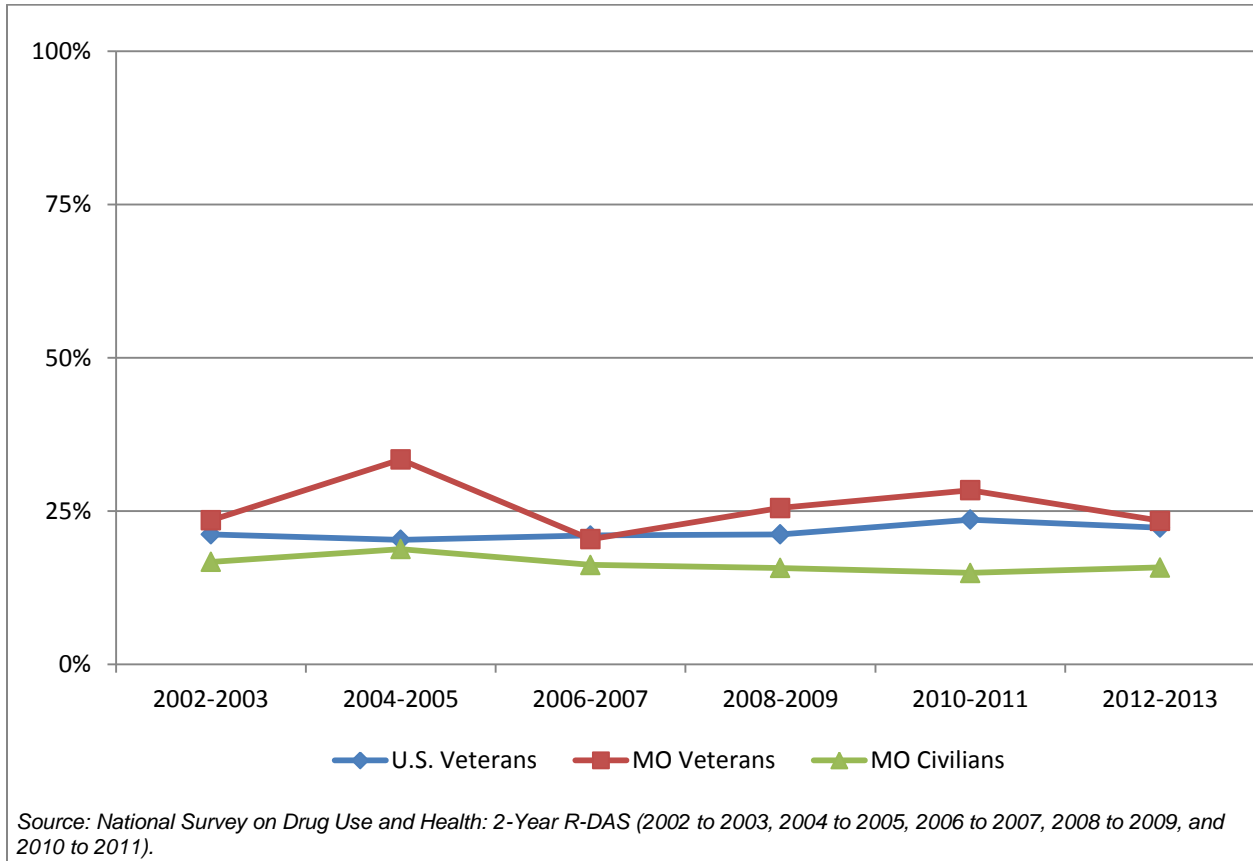
- The percent of Missouri veterans who have ever smoked a cigarette is slightly more than the average of U.S. veterans.
- In Missouri, the percent of veterans who have ever smoked a cigarette has remained relatively steady while the percent of civilians who have ever smoked a cigarette has declined across time.

Figure 58: % of Veterans (U.S. and Missouri) & Civilians (Missouri) who have Ever Smoked a Cigarette, Population: 2002-2013



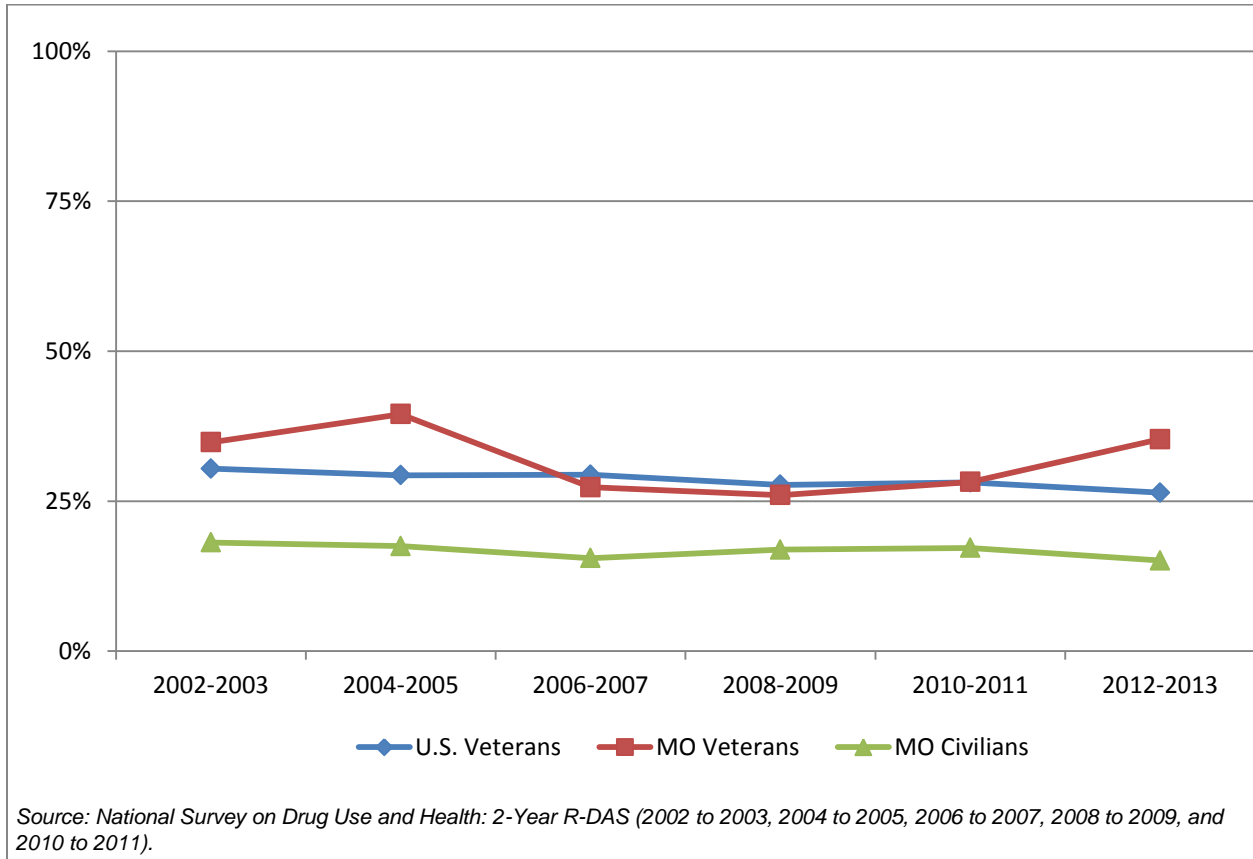
- The percent of individuals in every category who have ever used snuff has remained relatively stable since 2002-2003.
- Veterans in general use snuff at a slightly higher rate than citizens. Missouri veterans have varied slightly but on average use slightly more than U.S. veterans.

Figure 59: % of Veterans (U.S. and Missouri) & Civilians (Missouri) who have Ever Used Snuff, Population: 2002-2013



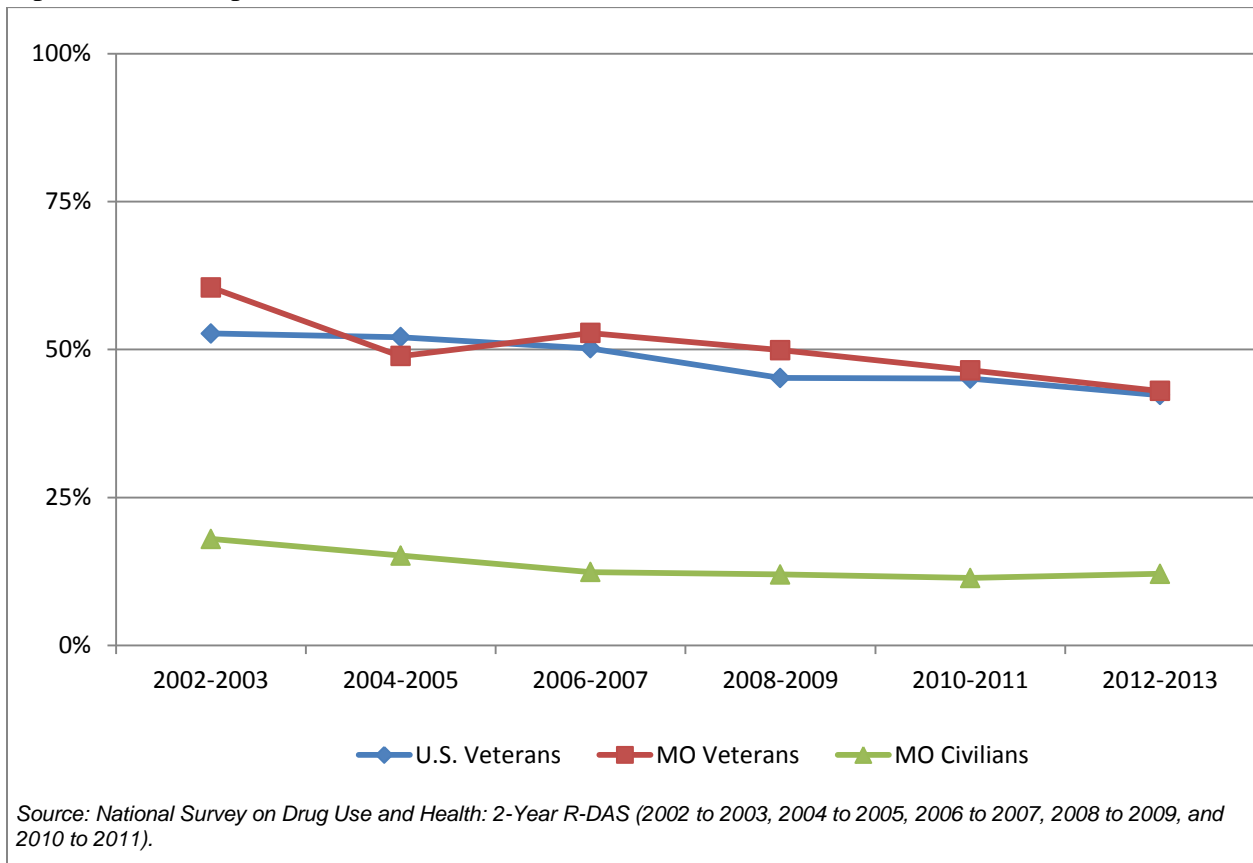
- As with other tobacco products, veterans tend to use chew at a slightly higher rate than civilians.

Figure 60: % of Veterans (U.S. and Missouri) & Civilians (Missouri) who have Ever Used Chew Even Once, Population: 2002-2013



- As with other tobacco products, veterans tend to use pipe tobacco at a higher rate than civilians.
- Pipe tobacco rates for veterans have decreased slightly over time.

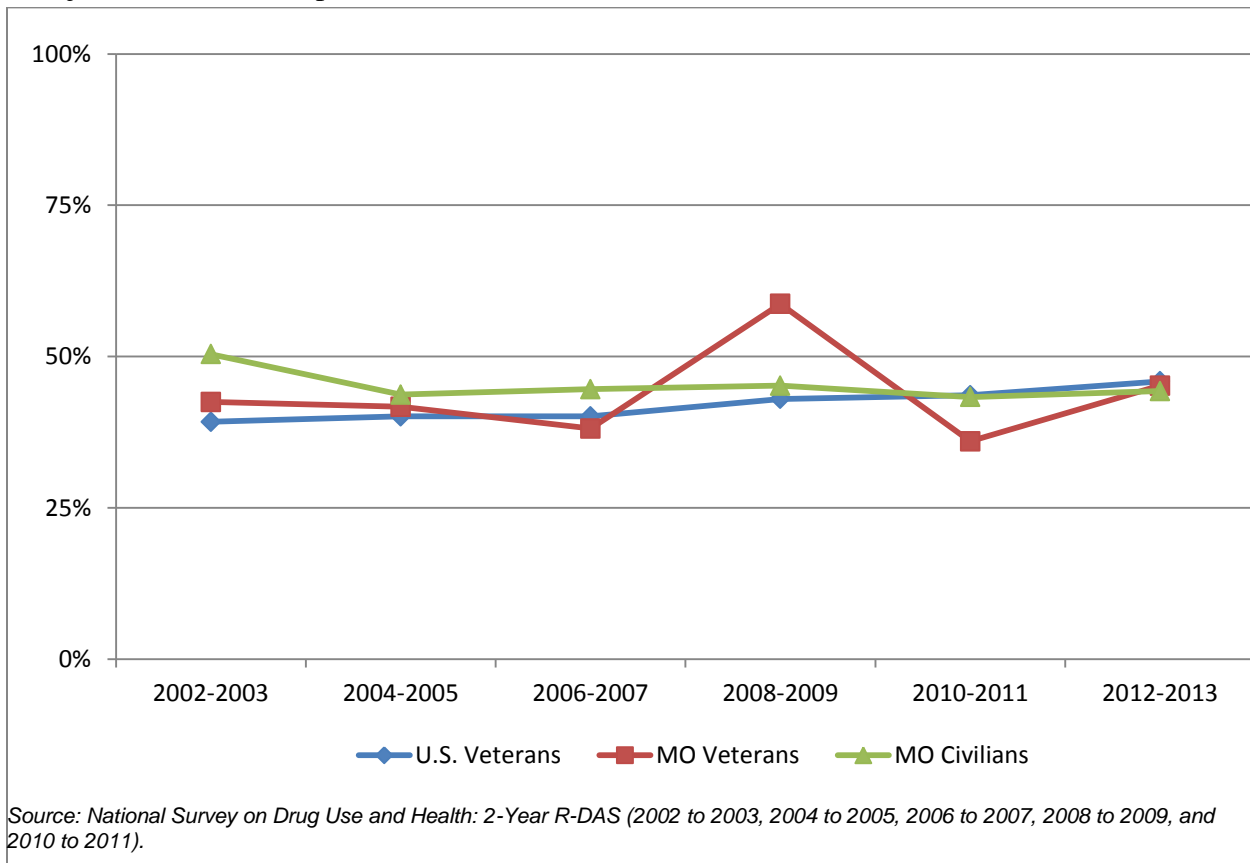
Figure 61: % of Veterans (U.S. and Missouri) & Civilians (Missouri) who have Ever Smoked Pipe Tobacco, Population: 2002-2013



## Marijuana

- With the exception of a data anomaly in 2008-2009, rates for marijuana use have remained relatively steady and similar for all groups.

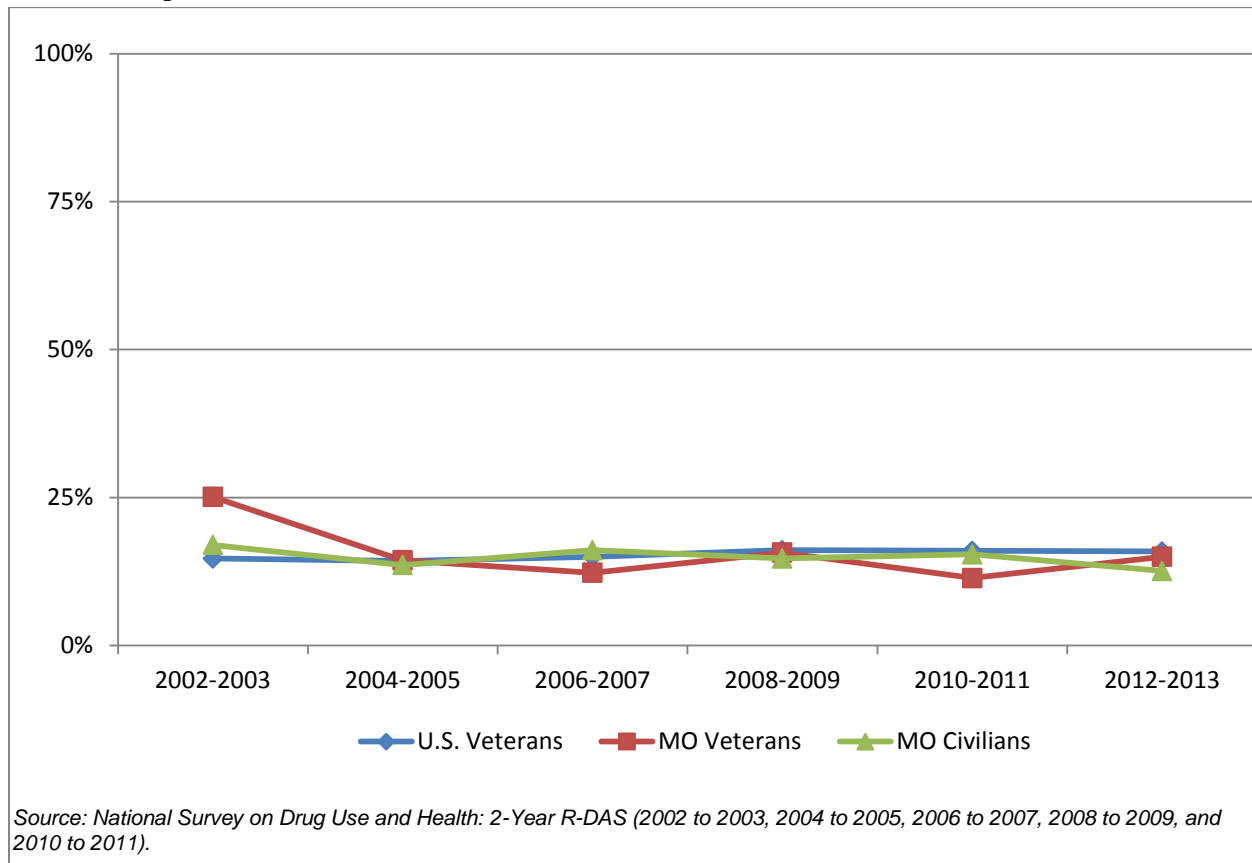
Figure 62: % of Veterans (U.S. and Missouri) & Civilians (Missouri) who have Ever Used Marijuana / Hashish, Population: 2002-2013



## Illicit Drugs Other than Marijuana

- Rates for cocaine use have also remained relatively steady and similar for all groups.

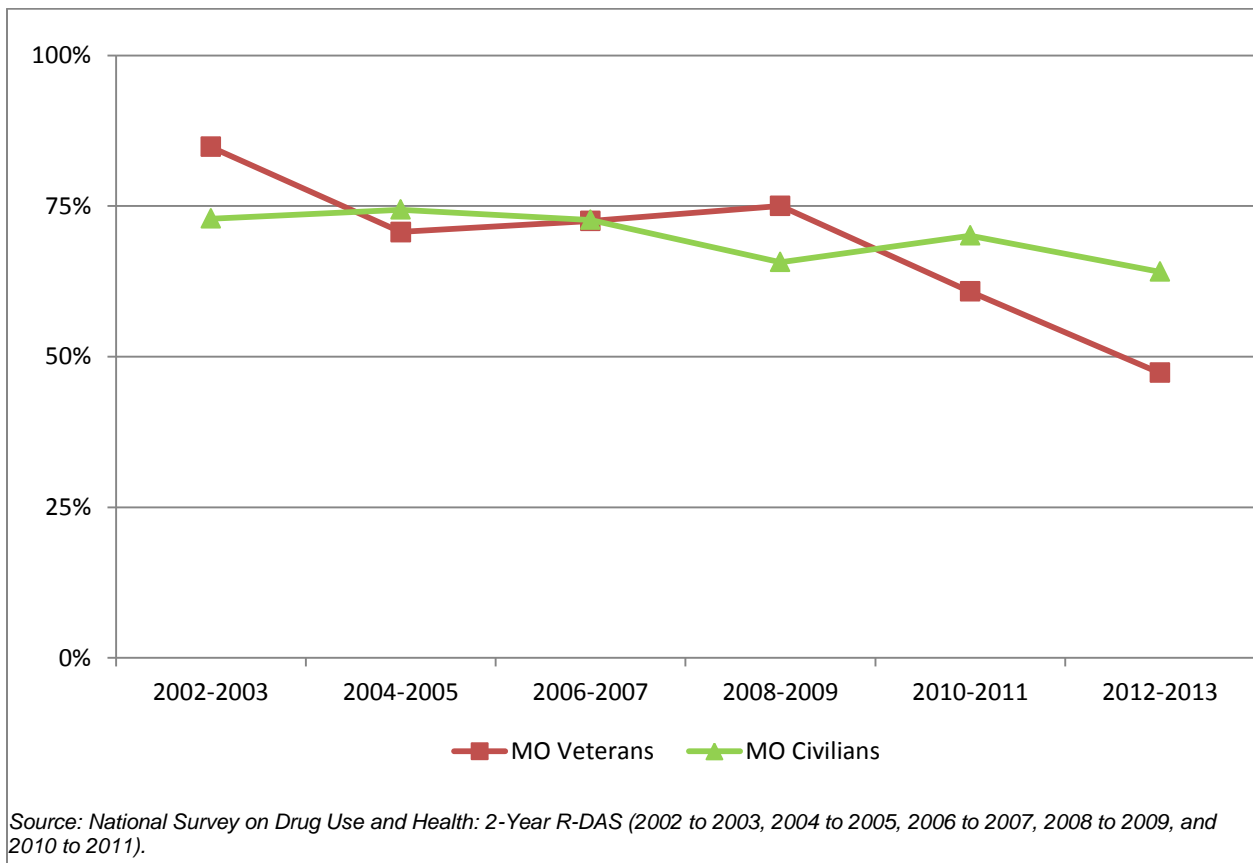
Figure 63: % of Veterans (U.S. and Missouri) & Civilians (Missouri) who have Ever Used Cocaine, Population: 2002-2013





- In Missouri, the percent of individuals who have ever used LSD has declined steadily since 2002-2003.
- Currently, more civilians reported ever using LSD than veterans in Missouri.
- Data for U.S. veterans who have ever used LSD was unavailable.

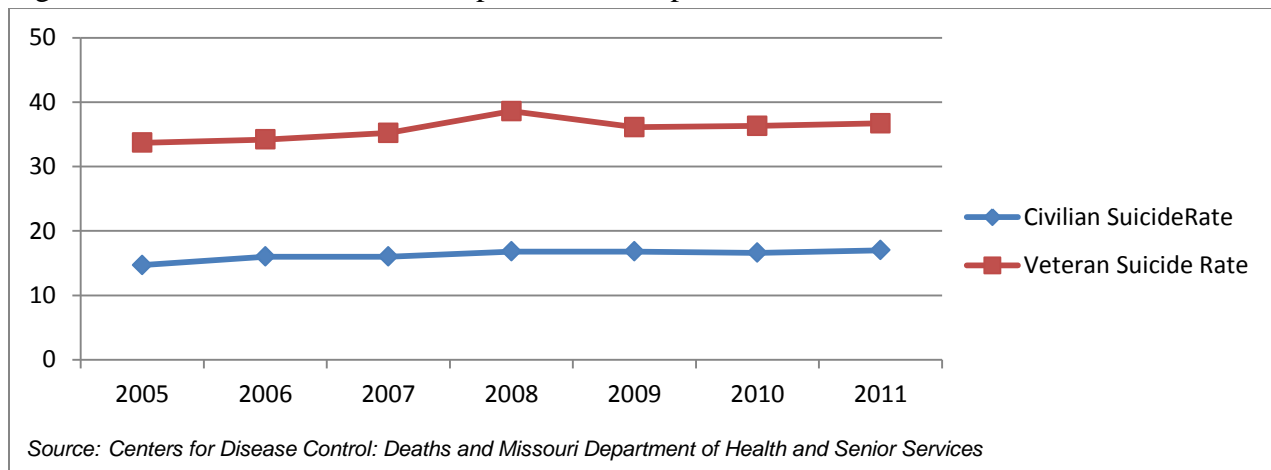
Figure 64: % of Veterans & Civilians who have Ever Used LSD, Population: Missouri, 2002-2013



## Mental Health Indicators

- Although stable over time, suicide rates in Missouri among veterans are more than double those among civilians.

Figure 65: Rate of Veteran Suicides per 100,000 Population: Missouri, 2005-2011



- About 37% more civilians than veterans report being told they had a depressive disorder in 2012.

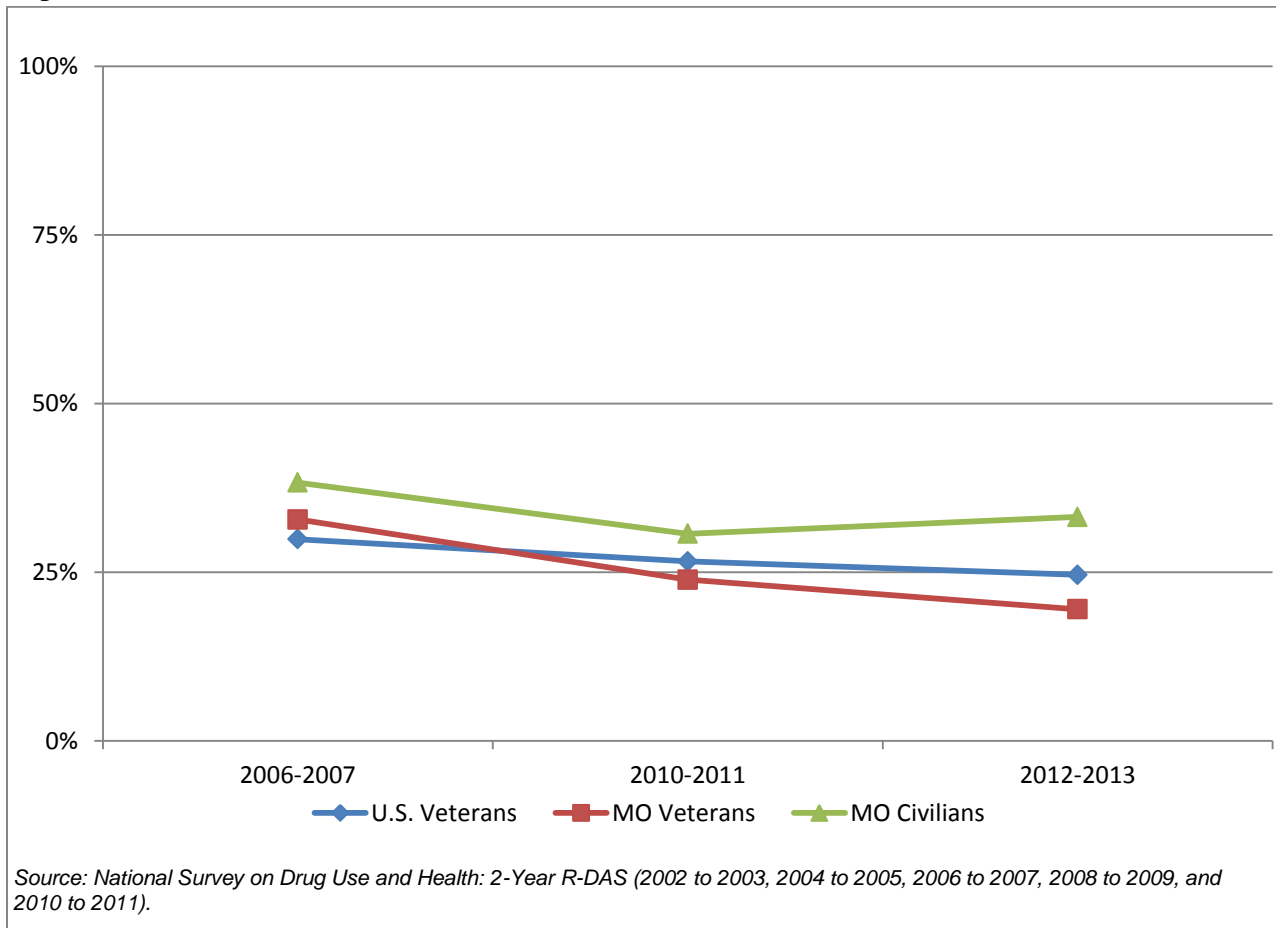
Table 23: Veteran Health Indicators (%) in Missouri, 2012

Health Indicator	% Veterans	% Civilians
Ever told they had a depressive disorder	15.12%	20.73%

Source: Behavioral Risk Factor Surveillance System

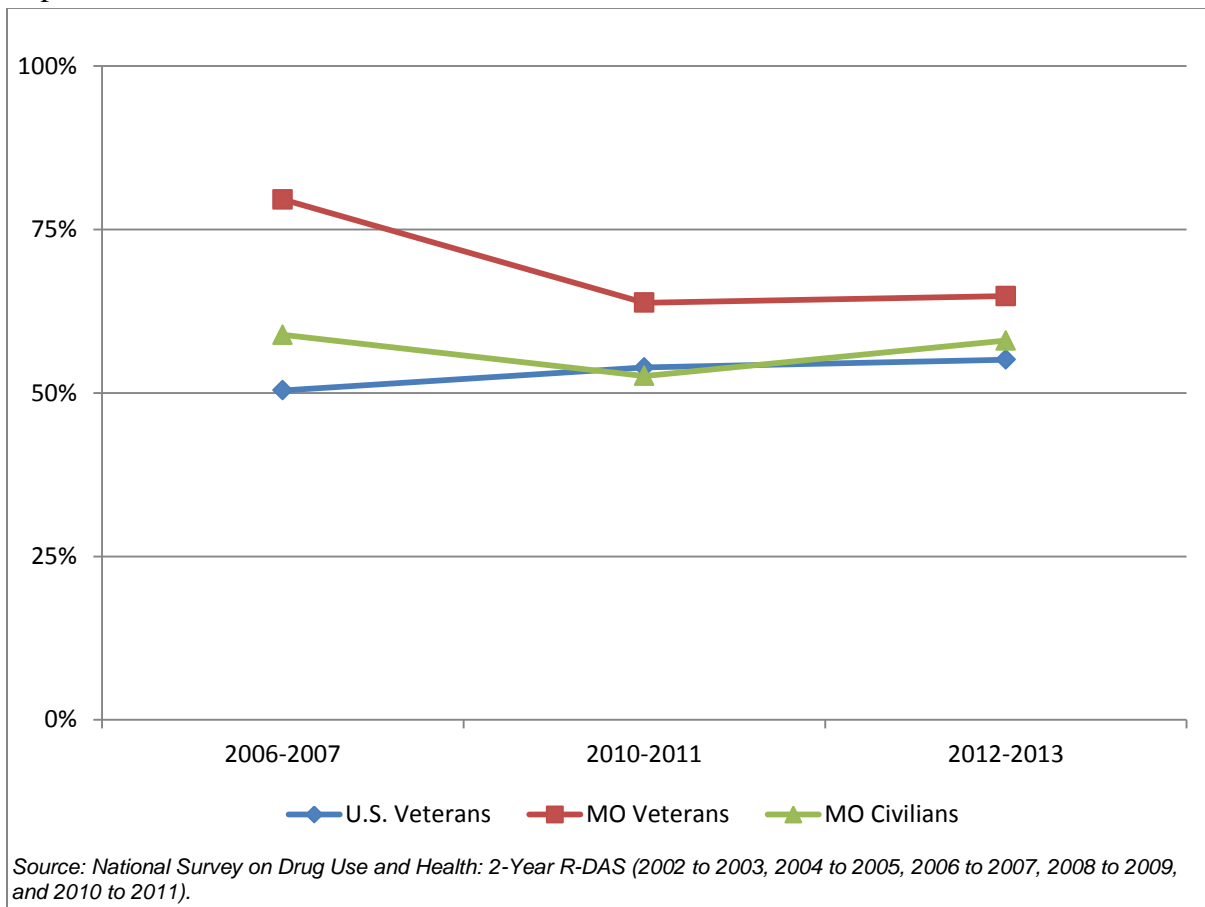
- The percent of all groups who reported feeling sad, empty, or depressed for several days or longer has decreased slightly since 2006-2007.
- Data was unavailable for the years between 2007 and 2010.

Figure 66: % of Veterans Who Felt Sad/Empty/Depressed for Several Days or Longer, Population: U.S. and Missouri, 2006-2013



- The percent of Missouri veterans who reported feeling sad, empty, or depressed for several days or longer has decreased since 2006-2007. However, this rate is still higher than for Missouri civilians or U.S. veterans.
- Data was unavailable for the years between 2007 and 2010.

Figure 67: % of Veterans Who Felt Sad/Empty/Depressed for Two Weeks or Longer, Population: Missouri, 2006-2013



# Data Limitations and Gaps

This report attempts to provide an overview of the state of Missouri's behavioral health data. However, due to limitations in the data available and resources to write the report, there are gaps that remain.

Both the risk and protective factor and the more in depth mental health data lack high quality, nationally comparable data sources. Local data was used to explore these variables in order to have some indication of their current status in Missouri. However, while some inferences can be made with local data, they should be interpreted cautiously. Methodological issues may cause some variability with the data that is not a true reflection of population. In addition, not having comparable numbers from other states or the national level leaves us without a way to determine the relative magnitude of the issues in the state.

Another concern is that, by using the risk and protective factors as defined by the Hawkins and Catalano Model, we are only able to examine middle and high school students and then with only a single data source. This does provide a starting point; however, further efforts will have to be made to determine which risk and protective factors play a role in influencing the behavioral health of people across the lifespan.

Data on consequences is available for the state level from the national data set and is included in this report. However, this should be expanded to include data indicating the cost to the state for each variable as that can be helpful in working with legislators and other groups. Cost data was indicated as a primary need by those working in the communities, when asked on the Data Needs Assessment Survey. A Technical Assistance request was made and staff are currently in the process of working with the TA providers to obtain this data.

The subpopulation data that would be most helpful at this point is that of the 18-21 and 21-25 year old age groups. Data shows that this age group is part of the heaviest users for alcohol, tobacco and other drugs. Those in the 18-21 are not yet legally allowed to drink which raises additional concerns for this group to access available resources. While there is some data available on usage rates from the national surveys, there is no information there on risk and protective factors, where the young people are accessing the substances or other information which could be used to target interventions to this high risk group.

Additional subpopulation data would also be helpful. In 2013, the MO-BHEW identified four high risk subpopulations for which it might be able to obtain data: veterans, the homeless, persons with a disability, and lesbian, gay, bisexual, transgender and queer (LGBTQ) individuals. The group was able to obtain some Missouri data for LGBTQ youth and veterans, and is currently in the process of exploring data sources for disabled persons and homeless individuals. Current data for LGBTQ individuals is limited to a small sample of youth from the

Missouri School Climate Survey, so we will continue to explore data sources pertaining to substance use and mental health in this population.

# Conclusions

Alcohol and tobacco are the two most commonly drugs used in Missouri. Binge drinking seems to be common among young (under 25) drinkers, raising concerns about risky drinking and the associated consequences. Tobacco consumption related mortality rates are consistently higher than the national average; however, usage rates for cigarettes are declining. When examining the risk and protective factors, alcohol also tends to be the drug that is seen both as the most acceptable and, along with tobacco, the easiest to obtain.

While illicit drugs are not as commonly used, the consequences of their use in Missouri tend to be higher than the national average. Risk and Protective Factor data indicate that over a fourth of all youth surveyed do not find marijuana smoking to be a risky behavior, over a third thought it would be at least sort of easy to obtain and a majority of youth think that a person smoking marijuana would not be likely to be caught by the police.

Those 18-25 and those who are male tend to be the ones with the highest use rates across all drugs.

When examining the mental health variables that have nationally comparable numbers, suicide is a larger problem in the state than is average for the nation, although it appears that depression in Missouri is more similar to national averages in 2012 than in the past. Approximately 1.25% of the state's population was served by CPS in the last year.

Finally, the Missouri Health Epidemiology Workgroup (MO-BHEW) identified two high risk subpopulations with data on mental health and substance abuse issues: lesbian, gay, bisexual, transgender or queer (LGBTQ) individuals and veterans. LGBTQ students are more than twice as likely as heterosexual students to use tobacco products, sometimes feel sad or depressed, or ponder suicide. Missouri veterans, on the other hand, are less likely than civilians and veterans nationally to use alcohol or drugs, and less likely to report feeling depressed or sad. However, suicide rates among veterans remain twice as high as those among civilians. Further, longitudinal research on veterans suggests that service members with combat exposures are at increased risk of alcohol-related problems, such as binge drinking, and an increase in smoking initiation<sup>7</sup>. This additional information suggests that Missouri veterans are a population that is at risk for substance abuse and mental health issues, and should continue to be monitored.

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<sup>7</sup> National Institute on Drug Abuse, (2011). *Topics in Brief: Substance Abuse among the Military, Veterans, and their Families – April 2011*. Washington, DC: NIDA. Retrieved from <http://www.drugabuse.gov/sites/default/files/veterans.pdf>

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# Appendix A - Data Sources, Indicators and Selection Criteria

## Data Sources

Table 24: Data Sources

Name of Survey	Frequency of Reporting	Mode of Data Collection	Group Surveyed	Level Data Reported
Behavioral Risk Factor Surveillance System (BRFSS)	Annual	Telephone interview	Ages 18 or older, includes veterans	National, state, and Missouri Department of Health and Senior Services planning regions
National Survey on Drug Use and Health (NSDUH)	Annual	Face-to-face interview	Ages 12 or older, includes veterans	National but can also obtain state and sub-state planning regions by combining multiple survey years
Missouri Student Survey (MSS)	Every even numbered year	Web-based at school	Grades 6th - 12th but emphasis on 9th grade	State and county
Youth Risk Behavior Survey (YRBS)	Every odd-numbered year	Paper questionnaire at school	9th through 12th	National and State
National Vital Statistics System Mortality (NVSS-M)	Annual	Death certificate data	Population level	National and State – see Appendix A for more information

## Additional State Level Data Sources:

### **Data Subject: Maternal drinking during pregnancy**

Data Source: Missouri Department of Health & Senior Services

Report Name: Missouri Vital Statistics

Report Frequency: Annual

Record Source: Birth certificates

Recording Method: Check box

Data Strengths: Birth certificate data is collected for every live birth. Missouri has reciprocal reporting arrangements with most other states, so out-of-state births to Missouri residents are included. Beginning in 1989, medical condition information on birth records is collected using check boxes rather than the previous open-ended questions. The use of check boxes increased reporting of medical risk factors by 50 percent in 1989 compared to 1988.

Data Limitations: Drinking during pregnancy is substantially under-reported in the birth records. In 2007 and 2008, the Missouri Pregnancy Risk Assessment Monitoring System (PRAMS), administered a mailed stratified random sample survey to mothers of Missouri newborns. The survey found that 5.8 percent of mothers acknowledged drinking alcohol in the last three months of their pregnancies. The 95% confidence interval for that estimate is 4.6%-6.9%. Due to likely under-reporting on the survey, the actual drinking rate is probably higher than the survey estimate. During the same two-year period, birth records indicated 484 births in 2007 and 416 in 2008 involved maternal drinking during their pregnancies--a two-year total of 900 among 162,825 live births and a rate of only 0.55 percent. Thus, the actual rate of maternal drinking during pregnancy is probably at least 10 times the rate reported in the birth records.

### **Data Subject: Maternal smoking during pregnancy**

Data Source: Missouri Department of Health & Senior Services

Report Name: Missouri Vital Statistics

Report Frequency: Annual

Record Source: Birth certificates

Recording Method: Check box

Data Strengths: Birth certificate data is collected for every live birth. Missouri has reciprocal reporting arrangements with most other states, so out-of-state births to Missouri residents are included. Beginning in 1989, medical condition information on birth records is collected using check boxes rather than the previous open-ended questions. The use of check boxes increased reporting of medical risk factors by 50 percent in 1989 compared to 1988.

Data Limitations: Smoking during pregnancy is under-reported in the birth records. In 2007 and 2008, the Missouri Pregnancy Risk Assessment Monitoring System (PRAMS), administered a mailed stratified random sample survey to mothers of Missouri newborns. The survey found that 20.1 percent of mothers acknowledged smoking in the last three months of their pregnancies. The 95% confidence interval for that estimate is 18.2%-22.0%. During the same two-year period, birth records indicated 14,533 births in 2007 and 14,211 in 2008 involved maternal smoking

during their pregnancies--a two-year total of 28,744 among 162,825 live births and a rate of 17.65 percent. Thus, the actual rate of maternal smoking during pregnancy is probably higher than the rate reported in the birth records.

**Data Subject: Juvenile court out-of-home placements of children due to parental substance use / abuse (categorized according to parental alcohol use, drug use, or alcohol and drug use).**

Data Source: Missouri Department of Social Services

Report Name: Unpublished report

Report Frequency: Provided annually to recipient requesting agency

Record Source: Statewide Automated Child Welfare Integrated System (SACWIS)

Recording Method: Information requested but not available as of the date the report is to be submitted.

**Data Subject: Alcohol-involved traffic crashes (categorized as fatal, non-fatal, and non-injury crashes) and injuries (categorized as fatalities and non-fatal injuries)**

Data Source: Missouri Department of Public Safety, State Highway Patrol, Statistical Analysis Center

Report Name: Unpublished report

Report Frequency: Provided annually to recipient requesting agency

Record Source: Missouri Uniform Accident Report

Recording Method: Check box

Data Strengths: Uniform Accident Report has a check box for alcohol as a probable contributing circumstance, based on the judgment of the investigating officer. There are check boxes for alcohol involvement for drivers and passengers. Data have been collected for many years. Data can be amended if Blood Alcohol Content (BAC) testing later indicates the offer was incorrect in their initial assessment; this is most often done in electronic records (approximately 1/3 of all reports are electronic).

Data Limitations: The check box system is not based on an objective method or a specific BAC threshold to determine whether alcohol contributed to the crash. The classification of alcohol involvement is different than the .01+ percent BAC criteria used by the National Highway Traffic Safety Administration (NHTSA) Fatality Analysis Reporting System (FARS).

**Data Subject: Lesbian, Gay, Bisexual, Transgender, Queer, Questioning, and Straight Allied (LGBTQ) students in Missouri's schools**

Data Source: Missouri GSA Network

Report Name: The 2013 Missouri GSA Network's Missouri School Climate Survey (MSCS)

Report Frequency: Biennially

Record Source: Keenan, Morgan and Seinn, Erin(2013) Missouri School Climate Survey: The Experiences of Lesbian, Gay, Bisexual, Transgender, Queer, Questioning and Straight



Allied (LGBTQ) Students in Missouri's Schools. Missouri: Missouri GSA Network. Retrieved from <http://www.mogsanet.dreamhosters.com/wpcontent/uploads/2013/10/SchoolClimateSurveyResults.pdf> and used with permission.

Recording Method: Check box

Data Strengths: The 2013 Missouri GSA Network's Missouri School Climate Survey (MSCS) is the first statewide survey to document the experiences of the students who identify as lesbian, gay, bisexual, transgender, queer, questioning, and straight ally (LGBTQ) in Missouri's secondary schools from local efforts. The Missouri School Climate Survey fills a crucial void in our collective understanding of the contemporary high school experience. This survey is the only one of its kind to collect this information in Missouri.

Data Limitations: The sample size for LGBTQ students was small, making it difficult to do group comparisons. Because this is the first to collect this type of information in Missouri, conclusions regarding changes across time cannot yet be drawn.

## **Data Selection**

For the last 16 years, DBH (formerly ADA) has produced an annual Status Report with data on alcohol and drug use across the state. This report includes data from national surveys as well as some local data where available. This historical data collection, in combination with the indicators listed in the guidance document, led to the choice of indicators covered. NSDUH was chosen as the primary data source (where available) over BRFSS due to its historical use in Missouri. However, when BRFSS data is used, data by gender is included as that is not available in NSDUH.

Similarly, Missouri State Highway Patrol (MSHP) data were used instead of NHTSA. Traditionally, these were used as MSHP only reports those known to have alcohol involvement while NHTSA attempts to estimate the percentage that were alcohol related from the pool of unknown.

Where State Epidemiological Data System (SEDS) data were not available, local sources were used to provide some information on the indicator, although they may not be as valid or reliable.

## Mortality Data

Note that the following ICD-10 codes were used to define the mortality categories. Data can be queried at <http://wonder.cdc.gov/ucd-icd10.html>.

Cardiovascular and Ischemic Cerebrovascular Disease	I20–I25 and I60-69, I00-I09, I11, I13, I26-I51(exclude I32, I39, I41)
Chronic Liver Disease & Cirrhosis	K70, K73-K74
COPD And Emphysema	J43-J44
Drug Related Behavior	F11- F16, F18-F19, F55 and G62
Drug Related Poisoning	X40-X44, X46, X60-X64, X66, Y10-Y14 and Y16
Homicide	X85-Y09 and Y87.1
Lung Cancer	C34
Suicide	X60-X84 and Y87.0